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OBJECTIVE

# NIPER AT YOUR FINGERTIPS

Scoring in NIPER MADE EASY

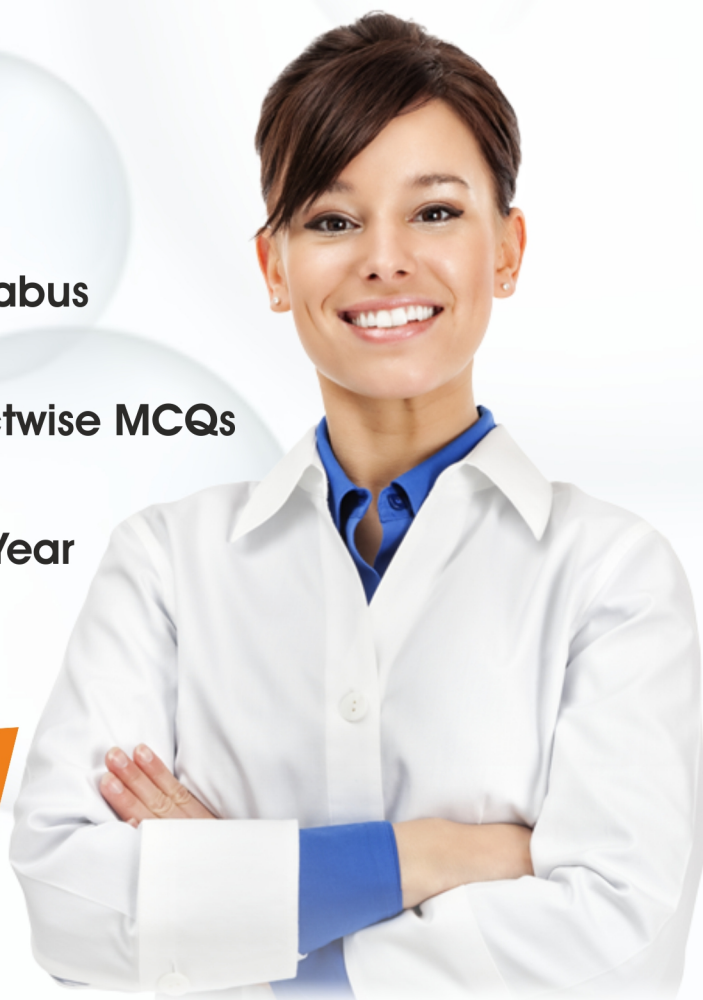
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# ■ Objective Book

# NIPER AT YOUR FINGERTIPS

Scoring in NIPER MADE EASY

*By*

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### Objective NIPER At Your Fingertips (Scoring in NIPER MADE EASY)

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# PREFACE

Welcome to "**Objective NIPER at Your Fingertips**" This objective book has been carefully crafted to support you in your journey towards success in the National Institute of Pharmaceutical Education and Research (NIPER) entrance examination.

NIPER is renowned for its excellence in pharmaceutical education and research, attracting aspiring pharmacists from all over the country. However, cracking the NIPER entrance exam requires more than just basic knowledge; it demands a deep understanding of the subjects and the ability to apply that knowledge to solve complex problems.

The book offers valuable exam strategies and time management techniques to help you optimize your performance within the given time constraints. Previous year Question, Self-assessment tests and model question papers are included to assess your progress and identify areas that require further improvement.

We sincerely hope that "Objective NIPER at Your Fingertips" empowers you to achieve your goals and secures your place in NIPER. May it serve as a valuable tool in your journey towards a successful and fulfilling career in the pharmaceutical field.

Best wishes,

**Dr. PEEYUSH JAISWAL**  
Director, GDC

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# PHARMACEUTICS

## PHARMACEUTICAL TECHNOLOGY

### Preformulation Studies

- Polymorphs is NOT determined by** [NIPER JEE-2024]
  - Optical crystallography
  - Hot stage microscopy
  - Solubility analysis
  - Differential thermal analysis
- Hot stage microscopy is used for the study of** [NIPER JEE-2024]
  - Particle size
  - Surface area
  - Crystal
  - Purity
- Amorphous is NOT determined by** [NIPER JEE-2023]
  - Lau method
  - X-ray powder diffraction
  - Differential Scanning Calorimetry
  - Dynamic vapor sorption
- Accelerated stability testing is done to** [NIPER JEE-2023]
  - Predict shelf of the formulation
  - Predict dissociation constant
  - Predict diffusion constant
  - Determine activation energy
- Arrange them in decreasing order** [NIPER JEE-2023]
  - Slightly soluble**
  - Soluble**
  - Sparingly soluble**
  - Very Soluble**
  - 3, 2, 1, 4
  - 2, 1, 3, 4
  - 1, 2, 3, 4
  - 4, 2, 3, 1
- Deliquescent substance** [NIPER JEE-2022]
  - Release water
  - Hydrolysed in presence of water
  - Adsorb gases
  - Absorb water
- Which of the following solvent system used to determine the Partition coefficient of drugs** [NIPER JEE-2016]
  - Heptanol and water
  - Octanol and ethanol
  - Water and ethanol
  - Octanol and water
- Distribution coefficient is** [NIPER JEE-2015]
  - $\frac{\text{Concentration of drug in oil phase}}{\text{Concentration of drug in aqueous phase}}$
  - Partition Coefficient
  - $\frac{\text{Concentration of drug in aqueous phase}}{\text{Concentration of drug in oil phase}}$
  - Both (a) and (b)
- Partition coefficient related with** [NIPER JEE-2020]
  - Lipophilicity and hydrophilicity of drug
  - Rate of drug absorption
  - Both (a) and (b)
  - HLB value
- For effective buffer capacity the value of pH should be** [NIPER JEE-2019, 2020]
  - Equal to pKa
  - 50 percent of pKa
  - Double of pKa
  - Half of pKa
- A drug having pKa more than 3 gets ionized at the site** [NIPER JEE-2009]
  - Stomach
  - Large intestine
  - Small intestine
  - Mouth
- Henderson-Hasselbalch equation is also known as** [NIPER JEE-2010]
  - Stability study
  - Reaction kinetics
  - Solubility parameter
  - pH equation

31. Which polymorph is unstable at all temperatures and pressures  
 (a) Enantiotropic (b) Monotropic  
 (c) Amorphous (d) Polymorphic
32. Hot stage microscopy is conjugated with \_\_\_\_ method to facilitate differential of endotherm for polymeric transition  
 (a) PXR D (b) DSC  
 (c) SEM (d) HSM
33. Freeze liquid form is another name of  
 (a) Crystalline form (b) Hydrates form  
 (c) Both (a) and (b) (d) Amorphous form
34. Drug-drug / drug-excipients / excipient-excipient interaction can be determined by which of the following method  
 (a) DSC (b) TLC  
 (c) Both (a) and (b) (d) TEM
35. All of the following properties are the different among the all polymorphs, EXCEPT  
 (a) Melting point (b) Solubility  
 (c) Both (a) and (b) (d) Chemical reaction
- Monophasic Liquid Dosage Form**
36. Which process deals with increase of solubility in liquid orals [NIPER JEE-2024]  
 (a) Micronization  
 (b) Inclusion Complex Formation-Based Techniques  
 (c) Particle size reduction  
 (d) All of these
37. Elixirs are [NIPER JEE-2024]  
 (a) Sweetened hydroalcoholic solution  
 (b) Plain hydroalcoholic solutions  
 (c) Sweetened aqueous solutions  
 (d) None of these
38. The process of increasing the solubility by the addition of additives is called [NIPER JEE-2015, 2019]  
 (a) Solubilization (b) Cosolvency  
 (c) Hydrotrophy (d) Complexation
39. Mechanism of beta cyclodextrin for Solubilization is [NIPER JEE-2016]  
 (a) pH modification (b) Cosolvency  
 (c) Salt formation (d) Complexation
40. Cyclodextrin is used as [NIPER JEE-2019]  
 (a) A solubility enhancing agent  
 (b) A hydrotropic agent  
 (c) A preservative  
 (d) All of these
41. In which form solubility of cyclodextrin is maximum [NIPER JEE-2006]  
 (a)  $\alpha$  form (b)  $\beta$  form  
 (c) Trans form (d) C is form
42. If the HLB value is very high like SLS (40), the compound acts as [NIPER JEE-2018]  
 (a) Solubility enhancer (b) O/W emulsifier  
 (c) W/O emulsifier (d) Penetration enhancer
43. Which of the following is 200 times more sweet than sucrose [NIPER JEE-2022]  
 (a) Aspartame (b) Sodium saccharine  
 (c) Alitame (d) Neotame
44. Aspartame is chemically [NIPER JEE-2008]  
 (a) Ester of N-methyl aspartic acid + Phenyl acetate  
 (b) Ester of N-methyl aspartic acid + Acetyl acetate  
 (c) Ester of N, N- di methyl aspartic acid + Phenyl acetate  
 (d) Ester of N-methyl glutamic acid + Phenyl acetate
45. Ethanol enhanced the solubility of drug in water, so known as [NIPER JEE-2022]  
 (a) Solubilizing agent (b) Hydrotropic agent  
 (c) Co-solvent (d) Complexing agent
46. Which is an example of alcoholic preparation [NIPER JEE-2007, 2010]  
 (a) Elixir (b) Spirit  
 (c) Collodion (d) Both (a) and (b)
47. One of the following is added to syrups to avoid crystallization [NIPER JEE-2010]  
 (a) Polyhydric alcohol (b) Monohydric alcohol  
 (c) Ethers (d) Esters
48. Which of the following concentration is related to USP Syrup [NIPER JEE-2011, 2015, 2022]  
 (a) 85% W/W (b) 66.7% W/W  
 (c) 85% W/V (d) 67.7% W/V
49. Invert syrup contains [NIPER JEE-2021]  
 (a) Sucrose and water (b) Fructose and glucose  
 (c) Lactose and glucose (d) Fructose and sucrose
50. All of the following are alcoholic preparations, EXCEPT [NIPER JEE-2008]  
 (a) Tincture (b) Arista  
 (c) Syrup (d) Elixir

72. The solubility of caffeine is increased appreciably by the large concentrations of sodium benzoate is a classic example for  
 (a) Solubilization (b) Complexation  
 (c) Hydrotropy (d) Co-solvency
73. The solubility of nonelectrolytes will be unaffected by  
 (a) Complexation (b) Cosolvent  
 (c) Solubilization (d) pH of the media
74. Sodium saccharine is \_\_\_\_\_ times more sweet than sucrose  
 (a) 100 (b) 250  
 (c) 1000 (d) 500
75. Which method is NOT used for the preparation of syrups  
 (a) Distillation (b) Percolation  
 (c) Agitation (d) Heat method
76. Which of the following artificial sweetener is a methyl ester of aspartic acid and phenyl alanine  
 (a) Cyclamate (b) Sucralose  
 (c) Aspartame (d) Saccharin
77. Which of the following showing antioxidant action by chain blocking effect  
 (a) BHT  
 (b) BHA  
 (c) Both (a) and (b)  
 (d) Sodium metabisulphite
78. An isotonic solution  
 (a) Does not cause hemolysis  
 (b) Has same salt composition as plasma  
 (c) Cause crenulations  
 (d) Does not cause crenulations
79. The pH of pharmaceutical buffer system can be calculated by  
 (a) pH partition Theory  
 (b) Noyes Whitney Law  
 (c) Henderson-Hasselbalch Equation  
 (d) Michalis Menten Equations
80. Cap locking problem is occur in liquid dosage form due to  
 (a) Solubilization of preservatives  
 (b) Crystallization of sugars  
 (c) Crystallization of preservatives  
 (d) All of these
81. Which of the following is NOT responsible for bitter taste in formulation  
 (a) Wild cherry (b) Vanilla  
 (c) Mint (d) Walnut
82. "Listerine" is an example of  
 (a) Aromatic water (b) Elixir  
 (c) Dispersed system (d) Solution
83. Which of the following act as desensitizing agent(s)  
 (a) Chloroform (b) PEG  
 (c) Menthol (d) Both (a) & (c)

## Suspension

84. High sedimentation rate and hard cake is not formed in which suspension [NIPER JEE-2023]  
 (a) Flocculated (b) Deflocculated  
 (c) Multiple (d) Simple
85. Creaming is \_\_\_\_\_ a process [NIPER JEE-2023]  
 (a) Reversible (b) Irreversible  
 (c) Downward (d) Both (a) and (c)
86. Anionic flocculating agent is [NIPER JEE-2022]  
 (a) Guar gum (b) HPMC  
 (c) PVP (d) Tragacanth
87. Ostwald ripening is associated with [NIPER JEE-2019]  
 (a) Suspension (b) Emulsion  
 (c) Colloids (d) Capsule
88. Flocculated suspension shows which type of flow [NIPER JEE-2017]  
 (a) Plastic (b) Pseudoplastic  
 (c) Newtonian (d) Dilatant
89. Drug release from oily suspension depend on [NIPER JEE-2018]  
 (a) Dissolution of the drug  
 (b) Permeability of the drug  
 (c) Facilitated diffusion  
 (d) All of these
90. Bancroft rule determines stability of [NIPER JEE-2019]  
 (a) Suspension (b) Emulsion  
 (c) Solution (d) Elixir
91. Which strategy is appropriate to avoid caking in suspensions [NIPER JEE-2020]  
 (a) Uniform and spherical particles with narrow size distribution  
 (b) Rod shaped particles with uniform shape  
 (c) Uniform and spherical particles with wide size distribution  
 (d) Irregular shaped particles with wide size distribution

- 109. Which of the following is an example of external preparation of suspension containing indiffusible solid**
- (a) Magnesium trisilicate  
(b) Hydrocortisone  
(c) Phenobarbitone  
(d) Aspirin
- 110. Zeta potential of suspension can be measured by the device**
- (a) Microelectrophoresis  
(b) Rabbit erythrocyte  
(c) Electron microscopy  
(d) Cellophane membrane
- 111. Which of the following is natural polymer as non-ionic suspending agent**
- (a) HPMC  
(b) Acacia  
(c) Guar gum  
(d) Xanthan gum
- 112. In freeze-thaw cycling phenomenon is a major problem creates in suspension formulation, which is**
- (a) Rapid sedimentation  
(b) Ostwald ripening  
(c) Creaming  
(d) Phase inversion
- 113. Flocculated suspension system has**
- (a) Higher bioavailability  
(b) Strong bonding forces  
(c) Better physical stability  
(d) All of these
- 114. A Silverson mixer is used for preparing** [NIPER JEE-2024]
- (a) Solutions  
(b) Emulsions  
(c) Capsules  
(d) Tablets
- 115. When oil and water are triturated and an increase in interfacial energy is observed, it means that** [NIPER JEE-2024]
- (a) The two phases are mixing uniformly  
(b) The emulsion is stable  
(c) There is a resistance to mixing of the two phases  
(d) The solubility of the oil in water is increasing
- 116. Which of the following is commonly used to stabilize a formulation from disassembly** [NIPER JEE-2024]
- (a) Surfactants  
(b) Antioxidants  
(c) Emulsifiers  
(d) Preservatives
- 117. Complete separation of two phase of emulsion is known as** [NIPER JEE-2018]
- (a) Phase separation  
(b) Creaming  
(c) Cracking  
(d) Sedimentation
- 118. Which of the following test used in the detection of emulsion** [NIPER JEE-2018]
- (a) Dye test  
(b) Dilution test  
(c) Conductivity test  
(d) All of these
- 119. Which phenomenon does NOT result in increased size of globule of emulsion** [NIPER JEE-2016]
- (a) Caking  
(b) Coalescence  
(c) Creaming  
(d) Phase inversion
- 120. HLB value of an emulsifier agent required to make O/W emulsion is** [NIPER JEE-2007, 2006]
- (a) 8 to 16  
(b) 1 to 3  
(c) 16 to 18  
(d) 3 to 8
- 121. HLB value of W/O emulsion should be between** [NIPER JEE-2006]
- (a) 3-8  
(b) 7-9  
(c) 9-13  
(d) 14-18
- 122. In which emulsion system, dot pattern of dye is observed** [NIPER JEE-2007]
- (a) O/W  
(b) W/O  
(c) Both (a) and (b)  
(d) O/W/O

### MCQs FOR PRACTICE

- 123. Which of the following is a blend preservative of an emulsion system**
- (a) Propylparaben  
(b) Mixture of methylparaben and propyl paraben  
(c) Methylparaben  
(d) Sodium sorbate
- 124. Which of the defect in an emulsion make most unstable**
- (a) Creaming  
(b) Flocculation  
(c) Cracking  
(d) Sedimentation
- 125. Formula for primary emulsion of castor emulsion is**
- (a) Oil:water:gum=4:3:1  
(b) Oil:water:gum=3:2:1  
(c) Oil:water:gum=2:2:1  
(d) Oil:water:gum=4:2:1
- 126. According to Wedge theory, monovalent soaps give**
- (a) W/O emulsions  
(b) O/W/O emulsions  
(c) O/W emulsions  
(d) W/O/W emulsions

### Pharmaceutical Emulsion

- 127. Which one of the following is an emulsifying agent from the vegetable source**
- (a) Gelatin (b) Acacia  
(c) Wool fat (d) Methyl cellulose
- 128. Which of the following is the major drawback limiting the formulation of multiple emulsion**
- (a) Sustained effect  
(b) Difficult to formulate  
(c) Difficult to maintain stability  
(d) Both (b) and (c)
- 129. Which of the following is a biocompatible, non-irritant emulgent**
- (a) Tween 80 (b) Lecithin  
(c) Span 80 (d) SLS
- 130. Which of the following ingredient increases the viscosity of dispersed phase**
- (a) Hydrocolloids (b) BHT  
(c) Saccharine (d) All of these
- 131. Which of the following is the type of anionic emulsifying agent**
- (a) Soap (b) Sulphate  
(c) Benzene Sulphonate (d) All of these
- 132. Which of the following present in the emulsion formulation then there is no requirement of any preservative**
- (a) Non-ionic surfactant (b) Cationic surfactant  
(c) Anionic surfactant (d) All of these
- 133. Clear, transparent of dispersion of two phases is known as**
- (a) Multiple emulsion  
(b) Transparent emulsion  
(c) Micro emulsion  
(d) None of these
- 134. Rate of creaming is controlled by**
- (a) Radius of globules  
(b) Density of dispersed phase  
(c) Density of continuous phase  
(d) All of these
- 135. In the dye test of the emulsion which of the following dye is used for the identification of W/O emulsion**
- (a) Brilliant blue FCF (b) Scarlet red  
(c) Both (a) and (b) (d) Methylene blue
- 136. When the dispersed phase is high dense, which type of creaming occurs**
- (a) Downward  
(b) Upward

- (c) Negative sedimentation  
(d) All of these

- 137. Which type of emulsion is produced by natural polysaccharide such as tragacanth**
- (a) O/W emulsion (b) W/O emulsion  
(c) O/W/O emulsion (d) W/O/W emulsion



- 138. The rate of dissolution of a tablet is influenced by which of the following factors** [NIPER JEE-2024]
- (a) Tablet color  
(b) Surface area of the tablet  
(c) Shape of the tablet  
(d) Packaging material
- 139. Not a step of sugar coating** [NIPER JEE-2024]
- (a) Sealing (b) Subcoating  
(c) Smoothing (d) Polymerization
- 140. Improper drying or excess moisture content in tablets can lead to which of the following defects** [NIPER JEE-2024]
- (a) Capping (b) Disintegration  
(c) Sticking and picking (d) Hardness increase
- 141. Poor flow of granules leads to** [NIPER JEE-2023]
- (a) Weight variation (b) Lamination  
(c) Mottling (d) Capping
- 142. Which of the following is related to cellulose derivative** [NIPER JEE-2023]
- (a) Ac-di-sol (b) Povidone  
(c) Primojel (d) Emdex
- 143. Starch derivative do not belong** [NIPER JEE-2023]
- (a) Explotab (b) Primojel  
(c) Cerelese (d) Celutab
- 144. While tablet compression tablet stick to the die cavity. Which strategy is found to be the most appropriate to correct this problem** [NIPER JEE-2020]
- (a) Dry the granules properly  
(b) Reduce proportion of diluent  
(c) Reduce amount of lubricant  
(d) Increase the amount of disintegrating agent
- 145. If the tablet having dose 50 mg and weight of tablet is 250 mg, then as per USP what would be the limit for weight variation** [NIPER JEE-2020]
- (a)  $\pm 10\%$  (b)  $\pm 5\%$   
(c)  $\pm 15\%$  (d)  $\pm 7.5\%$

**166. Which of the following is film coated material**

[NIPER JEE-2015]

- (a) Eudragit LR (b) Eudragit 100  
(c) Eudragit S (d) Eudragit R

**167. Which of the following polymer is employed for enteric-coating** [NIPER JEE-2007]

- (a) Shellac (b) Zein  
(c) Starch (d) HPMCP

**168. Which of the following is enteric coating polymer** [NIPER JEE-2017]

- (a) Polyvinyl acetate phthalate  
(b) Methyl Cellulose (MC)  
(c) Hydroxy ethylcellulose (HEC)  
(d) Ethyl cellulose (EC)

**169. Purpose of shellac and zein in sugar coating is** [NIPER JEE-2017]

- (a) Fill imperfections in coating  
(b) Provide natural colors to the coating  
(c) Prevents from moisture attack  
(d) Provide smoothing of the coating

**170. Which of the following excipients is contraindicated in preparation containing iron** [NIPER JEE-2019]

- (a) Polyethylene glycol (b) Calcium stearate  
(c) Starch (d) Talc

**MCQs FOR PRACTICE**

**171. Which type of tablet is designed to release its drug content gradually over an extended period of time**

- (a) Immediate release tablet  
(b) Enteric-coated tablet  
(c) Sustained release tablet  
(d) Effervescent tablet

**172. Bumpy appearance due to Inadequate spreading of coating on tablet results in**

- (a) Bumping (b) Orange peel effect  
(c) Blooming (d) Sticking

**173. The breakdown of a tablet into smaller particles or granules is known as**

- (a) Disintegration (b) Crushing  
(c) Dissolution (d) Granulation

**174. Sub-coatings given to the tablets**

- (a) To increase bulk  
(b) To avoid deterioration due to microbial attack

- (c) To prevent the solubility in acidic media  
(d) To avoid stickiness

**175. Poorly manufactured tablets may have small pinholes on the surface. This phenomenon is known as**

- (a) Picking (b) Mottling  
(c) Leaching (d) Cracking

**176. Tablets placed under the tongue are called**

- (a) Buccal tablets (b) Troches  
(c) Sublingual tablets (d) Lozenges

**177. The component of tablet machine which controls the shape and size of the tablet is**

- (a) Hopper (b) Punches  
(c) Cam track (d) Dies

**178. Vitamin tablets are generally formulated as**

- (a) Hypodermic tablets (b) Sublingual tablets  
(c) Effervescent tablets (d) Chewable tablets

**179. In tablet manufacturing, TALC is used as**

- (a) Diluent (b) Granulating agent  
(c) Glidant (d) Disintegrating agent

**180. Which of the following is NOT a film defect in tablet coating**

- (a) Blistering (b) Flaking  
(c) Orange peel (d) Mottling

**181. As per IP in disintegration test, the time of disintegration for uncoated tablets is**

- (a) 15 minutes (b) 15 seconds  
(c) 30 minutes (d) 60 minutes

**182. Weight variation problem during tablet manufacturing is due to the**

- (a) Poor flow of the granulation  
(b) Rat holing and bridging  
(c) Surges of excessive flow  
(d) All of these

**183. Chilsonator roller compactor applied in the**

- (a) Wet granulation (b) Dry granulation  
(c) Direct compression (d) Indirect compression

**184. Whiskering at the tablet edge is the result of**

- (a) Deep concave punches  
(b) Convex punches  
(c) Punches worn at the surface edges  
(d) Both (a) and (c)

**185. The content uniformity test not applicable for**

- (a) Multivitamins and trace elements  
(b) Antibiotics  
(c) Paracetamol  
(d) All of these

- 227. Select the correct use of Fumaric acid in capsule formulation** [NIPER JEE-2021]  
 (a) As a preservative  
 (b) As a humectant  
 (c) As an opacifiers  
 (d) Reduces aldehydic tanning of gelatin
- 228. Equipment used to fill the pellets** [NIPER JEE-2022]  
 (a) Rotosort (b) Rotoweigh  
 (c) Accela Cota (d) Rotofill
- 229. The limit on iron content of the soft gelatin capsules is** [NIPER JEE-2022]  
 (a) 15 ppm (b) 1.5 ppm  
 (c) 150 ppm (d) 1500 ppm
- 230. What is the limit of moisture content in hard gelatin capsule** [NIPER JEE-2020]  
 (a) 10-20% (b) 13-16%  
 (c) 6-9 % (d) 1 to 5 %
- 231. The Shell of soft gelatin capsules may be made elastic or plastic like by the addition of** [NIPER JEE-2018]  
 (a) Sorbitol (b) Povidone  
 (c) PEG (d) Lactose
- 232. The moisture content of capsule shell is determined by** [NIPER JEE-2016]  
 (a) IR spectroscopy  
 (b) Toluene distillation method  
 (c) Accogel machine  
 (d) Erweka key
- 233. Glycerin or Sorbitol is added to gelatin in the preparation of soft gelatin capsules as**  
 (a) Preservatives (b) Plasticizer  
 (c) Polishing agent (d) Sweetening agent
- 234. 330 mg of aspirin is to be filled in hard gelatin capsules. Which is the appropriate capsule size**  
 (a) 1 (b) 2  
 (c) 0 (d) 3
- 235. Capsule shells are made with**  
 (a) Glycerol (b) Waxes  
 (c) Sugar (d) Gelatin
- 236. Type A gelatin has an isoelectric point of**  
 (a) pH 7.2 (b) pH 4.7  
 (c) pH 9.0 (d) pH 5.8
- 237. The required viscosity of gelatin used to manufacture soft gelatin capsule is**  
 (a) 25 – 45 centipoise (b) 25 – 45 millipoise  
 (c) 2.5 – 4.5 millipoise (d) 250 – 450 centipoise
- 238. Moisture content of empty gelatin capsule lie in the range of**  
 (a) Below 10% (b) 12-15%  
 (c) Above 16% (d) Above 20 %
- 239. The cohesive strength, cross linking of gelatin is determined by using following parameter**  
 (a) Bloom strength (b) Tensile strength  
 (c) Crushing strength (d) Cracking strength
- 240. The ratio of dry glycerin for 1gm of dry gelatin for the manufacturing of capsule**  
 (a) 0.4 to 0.8 (b) 0.4 to 0.6  
 (c) 0.7 to 1.3 (d) 0.2 to 0.8
- 241. The plasticizer incorporated for increasing the elasticity of gelatin shell**  
 (a) Glycerin (b) Water  
 (c) Sodium lauryl (d) Tween 80
- 242. It is a high speed capsule weighing machine**  
 (a) Rotoweigh (b) Rotosort  
 (c) Rotocap (d) Accelacota
- 243. Empty capsules of gelatin should be handled at \_\_\_ % RH**  
 (a) 10 – 20 (b) 1 – 10  
 (c) 100 – 200 (d) 30 – 45
- 244. Which of the following used to fill the powders into soft gelatin capsules**  
 (a) Rotofill (b) Rotosort  
 (c) Accogel (d) Rotoweigh
- 245. Rotosort is used for**  
 (a) Sorting filled capsule (b) Filling the capsule  
 (c) Mixing of powder (d) None of these


### MCQs FOR PRACTICE

### Sterilization and Sterile Product

- 246. Glass NOT used in packaging of parenteral preparation** [NIPER JEE-2024]  
 (a) Type I glass (b) Type II glass  
 (c) Type III glass (d) Type IV glass
- 247. Antioxidant used in pharmaceutical drug formulation** [NIPER JEE-2024]  
 (a) Thiourea (b) Sodium bisulfite  
 (c) Sodium metasilphate (d) All of these

## MCQs FOR PRACTICE

272. Water for injection should have conductivity range of  
 (a) NLT 1 micro mho (b) NLT 2 micro mho  
 (c) 10 micro mho (d) NMT 1 micro mho
273. Pyrogens are metabolic products of microorganisms which are chemically  
 (a) Lipopolysaccharide (b) Mono saccharides  
 (c) Lipids (d) None of these
274. The following ingredient is used as antioxidant and chelating agent  
 (a) Ascorbic acid  
 (b) EDTA  
 (c) Citric acid  
 (d) Phenyl mercuric acetate
275. Treated soda lime glass chemical resistance is evaluated by following test  
 (a) Water attack test (b)  $H_2SO_4$  attack test  
 (c) Powdered glass test (d) Fused glass test
276. HEPA filters are 99.97% efficient in removing particles of size range of  
 (a) 10  $\mu$  (b) 1  $\mu$   
 (c) 0.3  $\mu$  (d) 0.5  $\mu$
277. Sealing of ampoules is detected by following quality control test  
 (a) Leaker test (b) Sealing test  
 (c) LAL test (d) All of these
278. LAL (Limulus Amoebocyte Lysate) test is used for testing following parameter  
 (a) Sterility test (b) Pyrogen test  
 (c) Leakage test (d) Rabbit test
279. Which of the following commonly available large volume dextrose solution is isotonic  
 (a) 2.5% (b) 5%  
 (c) 10% (d) 20%
280. Which of the following is referred as biological indicator of Autoclave  
 (a) *Bacillus stearothermophilus*  
 (b) *Bacillus subtilis*  
 (c) *Bacillus moratorium*  
 (d) *Bacillus cereus*
281. The following are the oily solvents used for parenteral, EXCEPT  
 (a) Cotton seed oil (b) Sesame oil  
 (c) Ethyl oleate (d) Castor oil
282. The antimicrobial agent used in the ophthalmic solution is  
 (a) Chlorhexidine (b) Salicylic acid  
 (c) Sodium bicarbonate (d) PEG 4000
283. The storage directions for a parenteral solution specify "store in a cool place". This may be stored in  
 (a) An air-conditioned area 26°C  
 (b) A refrigerator at 15°C  
 (c) A place whose temperature is set at 5°C  
 (d) Room temperature at 27°C
284. Ascorbic acid is a preservative used in parenteral formulation, which act through  
 (a) Chelating agent  
 (b) Reducing agent  
 (c) Preventing auto oxidation  
 (d) All of these
285. Which of the following parenteral container material, shows the highest Gas permeation  
 (a) Polypropylene (b) Polystyrene  
 (c) Polyisoprene (d) Neoprene
286. Water attack test is used to identify the alkalinity in  
 (a) Type-I glass (b) Type-II glass  
 (c) Type-III glass (d) All of these
287. As per GMP permitted limit of solid contents in water for injections is  
 (a) 100 ppm (b) 1.0 ppm  
 (c) 0.7 ppm (d) 10.0 ppm
288. Buffers are added in the sterile products to maintain  
 (a) Sterility (b) pH  
 (c) Viscosity (d) Isotonicity
289. Which of the following substances is used to prevent oxidation reaction  
 (a) Preservatives (b) Antioxidants  
 (c) Surfactants (d) Deflocculating agents
290. Which one of the following is NOT an antioxidant agent  
 (a) Sodium bisulphate  
 (b) Sodium chloride  
 (c) Sodium metabisulphite  
 (d) Sodium sulphite

60. Dispersion of acacia in water gives the colloid of type  
 (a) Association (b) Negative  
 (c) Neutral (d) Positive
61. Purification of colloid performed by the  
 (a) Electrophoresis (b) Sedimentation  
 (c) Ultrafiltration (d) All of these
62. The molecular weight of dispersed solids in a colloidal system can be determined using an instrument  
 (a) Ultracentrifuge (b) Ultrafilters  
 (c) Ultramicroscope (d) Zeta meter
63. Which is the method accountable for the development of stable dispersion of colloidal particles in dispersion medium  
 (a) Coacervation (b) Peptization  
 (c) Flocculation (d) Coagulation
64. At which is the concentration at which monomeric surfactant molecules associate to form micelles  
 (a) HBO (b) DLVO  
 (c) HLB (d) CMC
- 

**Micromeritics**
65. Density can be measured by the following apparatus [NIPER JEE-2023]  
 (a) Soxhlet extraction (b) Karl Fischer Titrator  
 (c) Pycnometer (d) Distillation
66. If Carr's compressibility index value is in between 26 to 31, then flow will be [NIPER JEE-2022]  
 (a) Poor (b) Excellent  
 (c) Passable (d) Very, very poor
67. The values of angle of repose are between 41 to 45 the flow property will be [NIPER JEE-2021]  
 (a) Excellent (b) Good  
 (c) Passable (d) Poor
68. Coulter counter is used to measure [NIPER JEE-2022]  
 (a) Particle size (b) Particle Surface  
 (c) Particle volume (d) All of these
69. One of the following is NOT related to flow property of powders [NIPER JEE-2017, 2022]  
 (a) Hausner's ratio (b) Carr's index  
 (c) Angle of repose (d) Bulk density
70. If the value of Carr's index is 25-30 then the flow character is [NIPER JEE-2015]  
 (a) Poor (b) Good  
 (c) Very poor (d) Excellent
71. If powder is having free flowing characteristics, the Angle of repose will be [NIPER JEE-2022]  
 (a) Low (b) High  
 (c) Intermediate (d) Very high
72. Particle size used in sedimentation method is [NIPER JEE-2007]  
 (a) 1-200  $\mu\text{m}$  (b) 1-1200  $\mu\text{m}$   
 (c) 1-800  $\mu\text{m}$  (d) 1-1000  $\mu\text{m}$
73. Particle size determination by sedimentation method is done by [NIPER JEE-2006]  
 (a) Ostwald meter  
 (b) Andreasen pipette method  
 (c) Microscopy  
 (d) By Brownian motion
74. Angle of repose is used to study [NIPER JEE-2010]  
 (a) Friction of powder (b) Compressibility  
 (c) Flowability (d) Viscosity
75. Flowability of a powder can be measured by [NIPER JEE-2003]  
 (a) Carr's index (b) Angle of repose  
 (c) Both (a) and (b) (d) Sedimentation
76. For the good flow of powders, value of Hausner ratio is [NIPER JEE-2015]  
 (a) 1 - 1.11 (b) 1.12 - 1.18  
 (c) 1.19 - 1.25 (d) 1.26 - 1.34
77. True density is measured by [NIPER JEE-2015]  
 (a) Liquid displacement method  
 (b) Gas displacement method  
 (c) By floating in liquid  
 (d) All of these
78. Formula of Carr's index is [NIPER JEE-2017]  
 (a)  $\frac{\text{Poured density} - \text{Tapped density}}{\text{Poured density}} \times 100$   
 (b)  $\frac{\text{Tapped density} - \text{True density}}{\text{Tapped density}} \times 100$   
 (c)  $\frac{\text{Tapped density} - \text{Poured density}}{\text{Tapped density}} \times 100$   
 (d)  $\frac{\text{Poured density}}{\text{Tapped density}} \times 100$

## Chemical Kinetics And Drug Stability

136. Unit of rate constant for a second order reaction is [NIPER JEE-2023]

- (a)  $\text{mol}^{-1} \text{L S}^{-1}$                       (b)  $\text{mol L}^{-1}$   
(c)  $\text{S}^{-1}$                                       (d)  $\text{mol L}^{-1} \text{S}^{-1}$

137. The half-life for zero order reaction is calculated using [NIPER JEE-2022]

- (a)  $t_{1/2} = 0.693/k$                       (b)  $t_{1/2} = 2.303/k$   
(c)  $t_{1/2} = 1/ak$                           (d)  $t_{1/2} = [A]_0/2k$

138. Which order of the reaction is followed by photo decomposition of the drug [NIPER JEE-2021]

- (a) First                                      (b) Pseudo first  
(c) Second                                  (d) Zero

139. Half-life ( $t_{1/2}$ ) of first order rate reaction is represented by the formula, if  $a = \text{Conc.}$ ,  $K = \text{rate constant}$  [NIPER JEE-2008, 2022]

- (a)  $t_{1/2} = \frac{0.693}{K}$                           (b)  $t_{1/2} = \frac{2.303}{K}$   
(c)  $t_{1/2} = \frac{1}{aK}$                               (d)  $t_{1/2} = \frac{a}{2K}$

140. Arrhenius equation is used to determine stability of drugs which is a plot of [NIPER JEE-2017]

- (a)  $\text{Log } K \text{ Vs. } T$                           (b)  $\text{Log } K \text{ Vs. } 1/T$   
(c)  $K \text{ Vs. } T$                                   (d)  $T \text{ Vs. } t$

141. Photodecomposition of drugs usually follows [NIPER JEE-2008]

- (a) Zero order reaction  
(b) First order reaction  
(c) Pseudofirst order reaction  
(d) Second order reaction

142. Rate of kinetics deals with [NIPER JEE-2004, 2006]

- (a) Concentration                      (b) Order  
(c) Molecularity                          (d) All of these

### MCQs FOR PRACTICE

143. In a chemical reaction, the rate constant is independent of initial concentration. Which one of them is the order

- (a) First                                      (b) Second  
(c) Third                                      (d) Zero

144. For first order reactions the rate constant  $k$ , has the units as

- (a)  $\text{MS}^{-1}$     (b)  $\text{M}^{-1} \text{S}^{-1}$     (c)  $\text{M}^{-2} \text{S}^{-1}$     (d)  $\text{S}^{-1}$

145. Which equation is used to predict the stability of a drug product at room temperature from experiments at accelerated temperature

- (a) Higuchi equation  
(b) The Arrhenius equation  
(c) Hildebrand equation  
(d) The Hixson-Crowell equation

146. Drugs in suspension and semi-solid formulations always degraded by

- (a) Zero order kinetics  
(b) First order kinetics  
(c) Second order kinetics  
(d) Non-linear kinetics

147. The rate of degradation of the active ingredient in a dosage form can be affected by

- (a) Temperature  
(b) Dose of the active ingredient  
(c) pH and radiation  
(d) All of these

148. The most common mode of pharmaceutical degradation is

- (a) Hydrolysis                              (b) Polymerization  
(c) Photolysis                              (d) Isomerization

149. What is the unit of rate constant for zero order kinetics

- (a)  $\text{S}^{-1}$                                       (b)  $\text{Mol L}^{-1} \text{S}^{-1}$   
(c)  $\text{Mol L S}^{-1}$                               (d)  $\text{Mol}^{-1} \text{L}^{-1} \text{S}$

150. Shelf life of a pharmaceutical product is computed by

- (a) Fick's laws  
(b) Arrhenius equation  
(c) Higuchi equation  
(d) Noyes Whitney equation

151. Hydrolysis (inversion) of sucrose to glucose and fructose in aqueous solution which is catalysed by the acid, is the example of

- (a) Zero order reaction  
(b) First order reaction  
(c) Mixed order reaction  
(d) Pseudo first order reaction

152. Which of the following order of reaction shows the fastest rate of reaction among them

- (a) Zero                                      (b) Pseudo first  
(c) First                                      (d) Second

**168. Noyes-Whitney equation is employed for**

[NIPER JEE-2008, 2011, 2022]

- (a) Drug absorption (b) Drug distribution  
(c) Drug dissolution (d) Drug elimination

**169. Which of the following is used to evaluation of dosage form** [NIPER JEE-2019]

- (a) Dissolution time of drug  
(b) Elimination  $t_{1/2}$   
(c) Both (a) and (b)  
(d) Uniformity of dosage Assay

**170. Apparatus used to measure intrinsic dissolution** [NIPER JEE-2021]

- (a) Wood's apparatus  
(b) Ross miles apparatus  
(c) Andersen pipette apparatus  
(d) Cascade impactor

### MCQs FOR PRACTICE

**171. Hixon and Crowell Cube-root law is related to**

- (a) Micro emulsification  
(b) Drug dissolution  
(c) Stability of API against hydrolytic degradation  
(d) Sedimentation in liquids containing more than 10% suspended particles

**172. Test measuring the rate and extent of solution formation from a given dosage form is**

- (a) Disintegration test  
(b) Dissolution test  
(c) Bioavailability test  
(d) Content Uniformity test

**173. A solution, which contains a higher concentration of the dissolved solute than that at the dissolution equilibrium under the same conditions is called**

- (a) Supersaturated solution  
(b) Saturated solution  
(c) Solution of non-electrolytes  
(d) Unsaturated solution

**174. The rate of dissolution of a solid in a liquid is quantitatively given by which of following equation**

- (a) Higuchi equation  
(b) Fick's equation  
(c) Noyes-Whitney's equation  
(d) Henderson-Hasselbalch equation

**175. The Franz-diffusion cell which is used for the evaluation of transdermal drug delivery systems consists of**

- (a) 1 chamber (b) 2 chamber  
(c) 3 chamber (d) None of these

**176. Fick's law is used for study of**

- (a) Dissolution rate (b) Disintegration rate  
(c) Dissociation rate (d) Diffusion rate

**177. Rate limiting steps in the GIT absorption of poorly water soluble drugs is**

- (a) Permeation (b) Dissolution  
(c) Partition coefficient (d) All of these

**178. Which of the following is the limiting step in drug dissolution according to Interfacial barrier model**

- (a) Interfacial transport (b) Diffusion  
(c) Solubility (d) Particle size

**179. As per IP temperature of dissolution medium should be**

- (a)  $32^{\circ}\text{C} \pm 7^{\circ}\text{C}$  (b)  $37^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$   
(c)  $38^{\circ}\text{C} \pm 5^{\circ}\text{C}$  (d)  $40^{\circ}\text{C} \pm 5^{\circ}\text{C}$

**180. Absorption of drug from solid oral dosage forms is mainly influenced by \_\_\_ of the solid dosage form**

- (a) Solubility (b) Disintegration  
(c) Particle size (d) Partition coefficient

### States Of Matter

**181. In a eutectic mixture, the composition at which the lowest melting point occurs is called**

[NIPER JEE-2024]

- (a) Eutectic point (b) Solidus line  
(c) Liquidus line (d) Critical point

**182. Dipole - Induced dipole Interaction between the molecules is also called as** [NIPER JEE-2023]

- (a) Covalent forces (b) Debye forces  
(c) London forces (d) Intermolecular force

**183. The Vander Waal's equation explains the behaviour of** [NIPER JEE-2022]

- (a) Ideal gases (b) Real gases  
(c) Vapour (d) Non-real gases

# BIOPHARMACEUTICS

- $K_m$  value decreases in** [NIPER JEE-2024]
  - Uncompetitive inhibition model
  - Competitive inhibition
  - Mixed inhibition
  - None of these
- Pegylation of a drug is used to** [NIPER JEE-2024]
  - Improve solubility
  - Increase stability
  - Reduce toxicity
  - All of these
- Under BCS class I drug are having** [NIPER JEE-2024]
  - High solubility and permeability
  - Low solubility and permeability
  - High solubility and low permeability
  - Low solubility and high permeability
- The correct order of bioavailability is** [NIPER JEE-2023]
  - Oral > Rectal > Topical > Parenteral
  - Parenteral > Rectal > Topical > Oral
  - Parenteral > Oral > Topical > Rectal
  - Parenteral > Rectal > Oral > Topical
- High Plasma protein binding** [NIPER JEE-2023]
  - Small  $V_d$
  - Large  $V_d$
  - Distribution in body
  - None of the above
- Volume of distribution ( $V_d$ ) is** [NIPER JEE-2023]
  - Conc. of drugs in body to plasma concentration
  - Total amount of drug administered orally
  - Conc. of drug after administration of 10 mins
  - Total conc. of undissolved drugs in body
- Full form of ADME is** [NIPER JEE-2022]
  - Absorption, Distribution, Metabolism and Excretion
  - Absorption, Disposition, Metabolism and Excretion
  - Absorption, Distribution, Metabolism and Elimination
  - Absorption, Distribution, Metabolism and Excretion
- Which of the following is NOT a transport mechanism** [NIPER JEE-2022]
  - Active transport
  - Passive transport
  - Pore transport
  - Dissolution
- Which of the following is NOT an important parameter of plasma level time studies** [NIPER JEE-2022]
  - $C_{max}$
  - $T_{max}$
  - The area under the plasma level-time curve
  - Steady state level
- Most of the drugs absorb by which of the following mechanism** [NIPER JEE-2018]
  - Bulk Transport
  - Facilitated diffusion
  - Active transport
  - Passive diffusion
- Which factor does NOT affect the drug absorption** [NIPER JEE-2007]
  - Mobility
  - Lying condition
  - Patient colour
  - Food
- For maximum bioavailability, drug should be targeted at** [NIPER JEE-2020]
  - Stomach
  - Small intestine
  - Large intestine
  - Colon
- According to BCS high permeability drug having absorption is** [NIPER JEE-2020]
  - $\geq 90\%$
  - $\geq 50\%$
  - $\geq 99\%$
  - $\geq 95\%$
- P-glycoprotein can cause the following effect on drug transport from cell barrier** [NIPER JEE-2010]
  - Efflux of drug
  - Lipophilic drug
  - Hydrophilic drug
  - None of these
- Beta-cyclodextrin belongs to** [NIPER JEE-2015]
  - BCS class IV
  - BCS class I
  - BCS class III
  - BCS class II
- BCS class III drugs have** [NIPER JEE-2019]
  - High solubility
  - Poor solubility
  - High permeability
  - Both (b) and (c)
- Example of drug which belongs the BCS type IV class is** [NIPER JEE-2018]
  - High soluble Diltiazem
  - Nifedipine
  - Insulin
  - Taxol

# HOSPITAL AND DISPENSING PHARMACY

- The dose for children can be calculated on the basis of body weight by** [NIPER JEE-2024]
  - Young's rule or Dilling's rule
  - Young's rule or Catzel rule
  - Dilling's rule or Catzel rule
  - Clark's formula
- What is Fried formula** [NIPER JEE-2023]
  - Pediatric Dose =  $\left[ \frac{\text{Age}}{\text{Age}+12} \right] \times \text{Recommended Dose}$
  - Child Dose =  $\left[ \frac{\text{Age of child in months}}{150} \right] \times \text{Adult Dose}$
  - Child Dose =  $\left[ \frac{\text{Age of child in years}}{120} \right] \times \text{Adult Dose}$
  - Pediatric Dose =  $\left[ \frac{\text{Age}}{\text{Age}+18} \right] \times \text{Adult Dose}$
- 1 pound is equal to** [NIPER JEE-2023]
  - 10 ounces
  - 12 ounces
  - 14 ounces
  - 16 ounces
- One pound is equal to how many gram** [NIPER JEE-2023]
  - 450
  - 500
  - 400
  - 600
- Young's formula for calculating child dose** [NIPER JEE-2022]
  - Child Dose =  $\left[ \frac{\text{Age of child in years}}{120} \right] \times \text{Adult Dose}$
  - Child Dose =  $\left[ \frac{\text{Age of child in years}}{\text{Age of child in years} + 12} \right] \times \text{Adult Dose}$
  - Child Dose =  $\left[ \frac{\text{Age of child in years} + 1}{24} \right] \times \text{Adult Dose}$
  - Child Dose =  $\left[ \frac{\text{Age of child in years} + 3}{30} \right] \times \text{Adult Dose}$
- Method NOT used for conversion of dose** [NIPER JEE-2018]
  - Gaubin's formula
  - Allegation method
  - Method of rectangle
  - Method of cross over
- Amount (in ml) to be used of 60% ethanol and 20% ethanol to make 350 ml of 40% ethanol is** [NIPER JEE-2018]
  - 175 ml 60% ethanol and 175 ml 20% ethanol
  - 150 ml 60% ethanol and 200ml 20% ethanol
  - 200 ml 60% ethanol and 150 ml 20% ethanol
  - 225 ml 20% ethanol and 125 ml 60% ethanol
- One degree Celsius is how many degrees Kelvin** [NIPER JEE-2020]
  - 273.15 K
  - 274.15 K
  - 33.8 K
  - 1 K
- 1°C is equivalent to the** [NIPER JEE-2020]
  - 274.15 k
  - 273.67 k
  - 273 k
  - 270 k
- Mixture of Menthol and thymol show which of the following incompatibility** [NIPER JEE-2021]
  - Physical
  - Chemical
  - Therapeutic
  - Physicochemical
- ABC analysis deals with** [NIPER JEE-2006]
  - Toxicology study
  - Efficacy study
  - Inventory control
  - Physical analysis
- 1000 pico grams is equal to** [NIPER JEE-2016]
  - 1000 milligram
  - 10 milligram
  - 10 nanogram
  - 1nanogram
- 100% proof of spirit is equal to** [NIPER JEE-2020]
  - 57% ABV
  - 49% ABV
  - 30 % ABV
  - 90 % ABV
- According to IP cold storage means** [NIPER JEE-2022]
  - 0 to 2°C
  - 2 to 8°C
  - 8 to 15°C
  - 16 to 24°C
- The goal of formulary system management is to** [NIPER JEE-2022]
  - Review all significant adverse drug reactions
  - Review the drug list for use in the hospital
  - Develop procedures for handling and control of drugs brought into the hospital by patients
  - Provide sound therapeutics
- Which of the following is NOT used to measure child dose** [NIPER JEE-2018]
  - Dale's formula
  - Young's formula
  - Clark's formula
  - Fried's formula

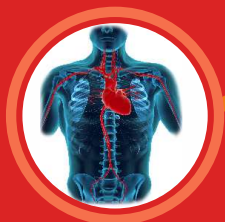
## COSMETIC TECHNOLOGY

1. Which of the following surfactant as detergent is present in the baby shampoo [NIPER JEE-2020]
    - (a) Tween
    - (b) Cationic surfactant
    - (c) Amphoteric imidazole derivatives
    - (d) SLS
  2. Lecithin in shampoos is used as [NIPER JEE-2016]
    - (a) Conditioning agent
    - (b) Foaming agent
    - (c) Viscosity enhancer
    - (d) Preservative
  3. Fluoride content toothpastes is NOT be more than [NIPER JEE-2021]
    - (a) 100 ppm
    - (b) 500 ppm
    - (c) 1000 ppm
    - (d) 1500 ppm
  4. Castor oil is used in the lipstick preparation as [NIPER JEE-2022]
    - (a) Film former
    - (b) Antioxidant
    - (c) Base
    - (d) Plasticizer
  5. Which one of the following is CORRECT [NIPER JEE-2019]
    - (a) Stannous fluoride is anticaries agent while calcium pyrophosphate is dentifrice
    - (b) Stannous chloride is dentifrice and calcium pyrophosphate are anticaries agent
    - (c) Both (a) and (b)
    - (d) None of these
- MCQs FOR PRACTICE**
6. Which of the following ingredients can be used for thickening shampoos
    - (a) Glycerine and Lactic acid
    - (b) Sodium Chloride and Carboxymethyl Cellulose
    - (c) Bentonite and Beeswax
    - (d) Mineral oil and Olive oil
  7. Which of the following is a nacreous pigment
    - (a) Titanium dioxide
    - (b) Bismuth oxychloride
    - (c) Chromium oxide
    - (d) Iron oxide
  8. Which category of ingredient is used to impart flexibility to the film of a nail polish
    - (a) Film former
    - (b) Pigment
    - (c) Thixotropic agent
    - (d) Plasticizer
  9. What is the role of sodium bicarbonate in a mouthwash
    - (a) It acts as a buffer salt
    - (b) It is a cleansing agent
    - (c) It is a deodorizer
    - (d) It acts as a viscosity-building agent
  10. Provisions for an exhaust fan should be provided to manufacture which cosmetic
    - (a) Face powder
    - (b) Nail polish
    - (c) Toothpaste
    - (d) Lipstick
  11. Which of the following is an example of a natural color
    - (a) Carotene
    - (b) Caramel
    - (c) Calcium salts
    - (d) All of these
  12. This product should NOT be used for dyeing eyebrows as it may lead to blindness. Such a caution is printed on which cosmetic label
    - (a) Hair shampoo
    - (b) Hair color
    - (c) Hair oil
    - (d) None of these
  13. Salicylic acid is used for treating
    - (a) Blackheads
    - (b) Whiteheads
    - (c) Both (a) and (b)
    - (d) None of these
  14. Which of the following antioxidants is added to aqueous formulations
    - (a) Ascorbic acid
    - (b) BHA
    - (c) BHT
    - (d) None of these
  15. Which of the following gives an effect of increased whiteness in soap
    - (a) Gum benzoin
    - (b) Musk
    - (c) Phenyl benzo thiazole
    - (d) Sodium thiosulphate
  16. Which of the following contains a high amount of emollient
    - (a) Bath salt
    - (b) Foam bath
    - (c) Bath oil
    - (d) Bath bomb
  17. In which direction should wax be applied
    - (a) In the direction of hair growth
    - (b) In any direction
    - (c) In the opposite direction of hair growth
    - (d) Client's choice

39. What are the primary functions of zinc pyrithione (ZPTO) in shampoos  
 (a) Moisturizing hair  
 (b) Removing dandruff  
 (c) Colouring hair  
 (d) Strengthening hair roots
40. Thioglycolic acid-like compounds have applications in following type of cosmetic formulations  
 (a) Depilatory preparations  
 (b) Epilatory preparations  
 (c) Vanishing creams  
 (d) Skin tan preparations
41. A sulphur compound which is a common ingredient in shampoos and lotions for the treatment of dandruff and seborrheic dermatitis  
 (a) Selenium sulphide  
 (b) Sodium bisulphite  
 (c) Sodium metabisulphite  
 (d) Strontium sulphide
42. Which alternatives are commonly used in hypoallergenic nail enamels to reduce the risk of allergic reactions  
 (a) Acrylic resin  
 (b) urea  
 (c) Cellulose acetate butyrate  
 (d) Silicone resin
43. Which ingredient is commonly added to nail polish for iridescence  
 (a) Titanium dioxide  
 (b) Guanine  
 (c) Fish scale  
 (d) Bismuth oxychloride
44. Trisodium phosphate in nail preparation is used as  
 (a) Cuticle remover (b) Cuticle softener  
 (c) Nail bleach (d) Nail enamel
45. Which one of the followings is NOT used in preparation of baby powders  
 (a) Stearic acid (b) Boric acid  
 (c) Kaolin (d) Calcium carbonate
46. Carbamide solution used for bleaching degrades into  
 (a) 0.5% sodium perborate  
 (b) 30% hydrogen peroxide  
 (c) 3% hydrogen peroxide  
 (d) 30% sodium perborate
47. Example for desensitizing agent  
 (a) Zinc oxide (b) Strontium chloride  
 (c) Sodium fluoride (d) Calcium carbonate
48. Which of the following is an example of an abrasive used in dentifrices  
 (a) Titanium dioxide (b) Sodium lauryl sulfate  
 (c) Calcium carbonate (d) Glycerine
49. Which of the following is the most popular binder in tooth pastes  
 (a) Sodium carboxy methyl cellulose  
 (b) Barium carboxy methyl cellulose  
 (c) Sodium carboxy ethyl cellulose  
 (d) None of these
50. Which of the following solvent is used as freezing point depressant in sulphonated shampoo  
 (a) Water (b) Acetone  
 (c) Glycerine (d) Petroleum ether

## PHARMACEUTICAL ENGINEERING

1. Evaporation is inversely proportional to atmosphere pressure and \_\_\_\_\_proportional surface area [NIPER JEE-2024]  
 (a) Inversely (b) Directly  
 (c) Equal (d) None of these
2. Which of the following modes of heat transfer does not require a medium [NIPER JEE-2024]  
 (a) Conduction (b) Convection  
 (c) Radiation (d) All of these
3. Water heating primarily occurs through [NIPER JEE-2024]  
 (a) Conduction (b) Convection  
 (c) Radiation (d) Sublimation



# PHARMACOLOGY

## General Pharmacology

**1. Most of the drug absorbed in body through**

[NIPER JEE-2024]

- (a) Active transport      (b) Passive transport  
(c) Ion pair transport      (d) Facilitated diffusion

**2. Type I hypersensitivity reactions are usually mediated by**

[NIPER JEE-2024]

- (a) IgE antibodies      (b) IgG antibodies  
(c) IgM antibodies      (d) Macrophages

**3. Pancreatic juice pH**

[NIPER JEE-2024]

- (a) Neutral      (b) Alkaline  
(c) Acidic      (d) None of these

**4. The route of drug administration that provides complete (100%) bioavailability is**

[NIPER JEE-2024]

- (a) Intramuscular Injection  
(b) Intravenous Injection  
(c) Intradermal Injection  
(d) Subcutaneous

**5. Which is NOT a Prodrug**

[NIPER JEE-2023]

- (a) Enalapril      (b) Lisinopril  
(c) Perindopril      (d) Ramipril

**6. Therapeutic confirmation is done in**

[NIPER JEE-2023]

- (a) Phase I      (b) Phase II  
(c) Phase III      (d) Phase IV

**7. Blocking of enzyme action by blocking its active site is called as**

[NIPER JEE-2023]

- (a) Allosteric inhibition  
(b) Feedback inhibition  
(c) Competitive inhibition  
(d) Non-competitive inhibition

**8. Pharmacokinetics is**

[NIPER JEE-2023]

- (a) The study of biological and therapeutic effects of drugs

- (b) The study of absorption, distribution, metabolism and excretion of drugs

- (c) The study of mechanisms of drug action

- (d) The study of methods of new drug development

**9. The dose related adverse reaction is called as**

[NIPER JEE-2023]

- (a) Type A hypersensitivity  
(b) Type B hypersensitivity  
(c) Type C hypersensitivity  
(d) Type D hypersensitivity

**10. Which tissue has the greatest capacity of biotransformation of drugs**

[NIPER JEE-2023]

- (a) Brain      (b) Kidney  
(c) Liver      (d) Lung

**11. Drug interaction is very hazardous between**

[NIPER JEE-2006]

- (a) Erythromycin and Terfenadine  
(b) Levodopa and Carbidopa  
(c) Nimesulide with Paracetamol  
(d) All of these

**12. Serious sides effect during clinical trials EXCEPT**

[NIPER JEE-2021]

- (a) Prolong hospitalization  
(b) Death  
(c) Permanent disability  
(d) ECG alterations

**13. Highest first pass metabolism is possessed by the following**

[NIPER JEE-2007, 2006]

- (a) Propranolol      (b) Digoxin  
(c) Phenobarbital      (d) Phenytoin

**14. What does the term "Potentiation" mean**

[NIPER JEE-2021]

- (a) Cumulative ability of a drug  
(b) Hypersensitivity to a drug  
(c) Fast tolerance developing  
(d) Intensive increase of drug effects due to their combination

## Drugs Acting on Autonomic Nervous System

1. **Pilocarpine can be used in** [NIPER JEE-2024]
  - (a) Hypertension
  - (b) Glaucoma
  - (c) Diabetes Mellitus
  - (d) Asthma
2. **Beta adrenergic receptor does NOT cause** [NIPER JEE-2023]
  - (a) Increase in heart rate
  - (b) Heart muscle contraction
  - (c) Decrease in heart rate
  - (d) Relaxation of smooth muscle in the bronchial tubes
3. **Diagnostic agent for myasthenia gravis is** [NIPER JEE-2006]
  - (a) Ketamine
  - (b) Edrophonium
  - (c) Physostigmine
  - (d) Valethamate
4. **Cholinesterase enzyme metabolizes the ACh by** [NIPER JEE-2003]
  - (a) Conjugation reaction
  - (b) Oxidation reaction
  - (c) Reduction reaction
  - (d) Hydrolysis reaction
5. **Which of the following is muscarinic agonist** [NIPER JEE-2003]
  - (a) Arecoline
  - (b) Tropicamide
  - (c) Atropine
  - (d) Biperiden
6. **Which of the following is/are causes of Myasthenia gravis** [NIPER JEE-2006]
  - (a) Neuromuscular binding to Acetylcholine
  - (b) Transmission of nerve impulses to muscles
  - (c) Autoimmune disease
  - (d) All of these
7. **Ipratropium Bromide is used in Asthma because it acts as** [NIPER JEE-2009]
  - (a) Expectorant
  - (b) Leukotriene antagonist
  - (c) Anticholinergic
  - (d)  $\beta_2$  sympathomimetic
8. **Anti-Adrenergic drugs are also known as** [NIPER JEE-2010]
  - (a) Sympathomimetic
  - (b) Parasympathomimetic
  - (c) Sympatholytic
  - (d) Parasympatholytic
9. **Heart contains which of the following muscarinic receptors** [NIPER JEE-2022]
  - (a)  $M_1$
  - (b)  $M_2$
  - (c)  $M_3$
  - (d)  $M_5$
10.  **$\beta_2$  selective blocker or antagonist is** [NIPER JEE-2006]
  - (a) Pindolol
  - (b) Sotalol
  - (c) Butaxamine
  - (d) Propranolol
11. **Which of the following is NOT causes mydriasis** [NIPER JEE-2022]
  - (a) Pilocarpine
  - (b) Cocaine
  - (c) Atropine
  - (d) Tropicamide
12. **Which is NOT the action of Adrenaline** [NIPER JEE-2022]
  - (a) Decreasing blood pressure
  - (b) Enlarging the pupil in the eye
  - (c) Redistributing blood to the muscles
  - (d) Increase the blood sugar
13. **Which is used as nasal decongestant** [NIPER JEE-2022]
  - (a) Salbutamol
  - (b) Ipratropium
  - (c) Montelukast
  - (d) Naphazoline
14. **Cholinomimetic drugs can be used for the treatment of all the following conditions EXCEPT** [NIPER JEE-2022]
  - (a) Closed angle Glaucoma
  - (b) Bradycardia
  - (c) Cobra bite
  - (d) Myasthenia gravis
15. **ACh shows the following effect on stomach** [NIPER JEE-2006]
  - (a) Hastens the gastric emptying
  - (b) Stomach ache
  - (c) Delayed gastric emptying
  - (d) All of these
16. **Propranolol is contraindicated in which disease** [NIPER JEE-2007]
  - (a) Myasthenia gravis
  - (b) Asthma
  - (c) Migraine
  - (d) All of these
17. **Muscarinic antagonist from the given drugs is** [NIPER JEE-2007]
  - (a) Atropine
  - (b) Methacholine
  - (c) Muscarine
  - (d) Carbachol
18. **Selective  $\beta_2$  agonist is** [NIPER JEE-2006]
  - (a) Prazosin
  - (b) Salbutamol
  - (c) Sotalol
  - (d) Atenolol
19. **Which of the following drug is used to treat the Alzheimer disease** [NIPER JEE-2009]
  - (a) Rivastigmine
  - (b) Donepezil
  - (c) Galantamine
  - (d) All of these

55. **Anti-inflammatory action of corticosteroids is due to blocking of**  
 (a) 15-lipoxygenase  
 (b) Prostaglandin synthetase  
 (c) Thromboxane synthetase  
 (d) Break down of phospholipids
56. **Which of the following is used for medical adrenalectomy**  
 (a) Mitotane (b) Methotrexate  
 (c) Doxorubicin (d) 5-Fluorouracil
57. **All of these drugs can be used in the postmenopausal osteoporosis EXCEPT**  
 (a) Alendronate (b) Teriparatide  
 (c) Calcium (d) Thyroxine
58. **Adverse effect of depot preparation of Triamcinolone**  
 (a) Atopic dermatitis (b) Proximal myopathy  
 (c) Vasculitis (d) Atrophic rhinitis
59. **Octreotide is a**  
 (a) Somatostatin analogue  
 (b) Dopamine receptor antagonist  
 (c) Growth hormone antagonist  
 (d) Gonadotropin releasing hormone agonist
60. **What is the drug of choice for eclampsia**  
 (a) Tiagabine (b) Vigabatrin  
 (c) Magnesium Sulphate (d) Sodium valproate
- (c) Streptomycin (d) Erythromycin
5. **Methemoglobinemia is an adverse effect of which drug** [NIPER JEE-2024]  
 (a) Acetaminophen (b) Dapsone  
 (c) Aspirin (d) Ibuprofen
6. **Reason for short half-life of protein bind drugs like Penicillin** [NIPER JEE-2024]  
 (a) Rapid excretion by the kidneys  
 (b) Low binding to plasma proteins  
 (c) High lipid solubility  
 (d) Slow metabolism by the liver
7. **Remdesivir targets** [NIPER JEE-2023]  
 (a) RNA-dependent RNA polymerase  
 (b) Reverse transcriptase  
 (c) Glycoprotein  
 (d) Spike protein
8. **The drug which acts as the motilin receptor agonist is** [NIPER JEE-2023]  
 (a) Cisapride (b) Metoclopramide  
 (c) Ondansetron (d) Erythromycin
9. **Which of the following anti-viral drug is anti-influenza** [NIPER JEE-2023]  
 (a) Oseltamivir (b) Lamivudine  
 (c) Acyclovir (d) Ribavirin
10. **Vinca drug inhibit** [NIPER JEE-2023]  
 (a) Microtubule (b) Nucleus  
 (c) Protein synthesis (d) DNA gyrase
11. **Tetracycline side effect** [NIPER JEE-2023]  
 (a) Redman Syndrome (b) Fanconi syndrome  
 (c) Grey baby syndrome (d) Hepatotoxicity
12. **Ethambutol toxicity** [NIPER JEE-2023]  
 (a) Optic neuritis (b) Hepatotoxicity  
 (c) Nephrotoxicity (d) Cardiac arrest
13. **Cerebral malaria is treated by** [NIPER JEE-2006]  
 (a) Quinine (b) Primaquine  
 (c) Artemisinin (d) Chloroquine
14. **Antifungal drug can be used in the treatment of Cushing Syndrome** [NIPER JEE-2022]  
 (a) Ketoconazole (b) Voriconazole  
 (c) Itraconazole (d) Miconazole
15. **Which of the following is FDA approved drug for MDR TB** [NIPER JEE-2015]  
 (a) Bedaquiline  
 (b) Apremilast  
 (c) Ceftazidime-avibactam  
 (d) Daratumumab

### Antimicrobial Agents and Anticancer Drugs

1. **Cisplatin acts by** [NIPER JEE-2024]  
 (a) Binding to DNA  
 (b) Binding to RNA  
 (c) Folate antagonist  
 (d) Pyrimidine antagonist
2. **Which drug inhibits polymerization of microtubule** [NIPER JEE-2024]  
 (a) Paclitaxel (b) Isoniazid  
 (c) Rifampin (d) Ethionamide
3. **Famciclovir is prodrug of** [NIPER JEE-2024]  
 (a) Penciclovir (b) Acyclovir  
 (c) Tenofovir (d) Abacavir
4. **What was the first antibiotic to be used in clinical practice** [NIPER JEE-2024]  
 (a) Tetracycline (b) Penicillin

**DRUGS ACTING ON AUTONOMIC NERVOUS SYTEM**

1 - b	2 - c	3 - b	4 - d	5 - a	6 - d	7 - c	8 - c	9 - a	10 - c
11 - a	12 - a	13 - d	14 - b	15 - a	16 - b	17 - a	18 - b	19 - d	20 - c
21 - a	22 - d	23 - b	24 - a	25 - c	26 - a	27 - a	28 - d	29 - d	30 - b
31 - c	32 - b	33 - b	34 - d	35 - d	36 - b	37 - b	38 - b	39 - d	40 - b
41 - d	42 - a	43 - c	44 - b	45 - b	46 - d	47 - a	48 - c	49 - b	50 - a
51 - a	52 - b	53 - b	54 - a	55 - b	56 - b	57 - a	58 - c	59 - c	60 - c
61 - d	62 - b	63 - c	64 - d	65 - b	66 - c	67 - d	68 - b	69 - b	70 - d
71 - c	72 - a	73 - a	74 - c	75 - a	76 - d	77 - b	78 - b	79 - c	80 - b

**DRUGS ACTING ON CENTRAL NERVOUS SYTEM**

1 - c	2 - c	3 - c	4 - b	5 - c	6 - b	7 - c	8 - a	9 - b	10 - a
11 - b	12 - a	13 - a	14 - b	15 - b	16 - b	17 - c	18 - c	19 - c	20 - a
21 - c	22 - b	23 - d	24 - c	25 - b	26 - c	27 - c	28 - b	29 - d	30 - d
31 - b	32 - c	33 - a	34 - c	35 - a	36 - d	37 - d	38 - d	39 - a	40 - a
41 - d	42 - a	43 - d	44 - a	45 - b	46 - a	47 - c	48 - c	49 - a	50 - d
51 - d	52 - c	53 - d	54 - a	55 - d	56 - b	57 - d	58 - a	59 - b	60 - a
61 - a	62 - a	63 - a	64 - a	65 - d	66 - b	67 - b	68 - c	69 - d	70 - d
71 - b	72 - a	73 - b	74 - a	75 - d	76 - d	77 - d	78 - c	79 - d	80 - a
81 - a	82 - a	83 - c	84 - c	85 - d	86 - c	87 - d	88 - a	89 - a	90 - a
91 - d	92 - c	93 - a	94 - d	95 - c	96 - b	97 - c	98 - a	99 - b	100 - b
101 - d	102 - d	103 - c	104 - b	105 - a	106 - a	107 - c	108 - d	109 - c	110 - b
111 - a	112 - c	113 - b	114 - b	115 - d	116 - a	117 - c	118 - a	119 - a	120 - c

**DRUGS ACTING ON PERIPHERAL, CARDIOVASCULAR, URINARY, RESPIRATORY AND BLOOD SYSTEM**

1 - a	2 - b	3 - a	4 - b	5 - a	6 - a	7 - c	8 - d	9 - d	10 - a
11 - c	12 - d	13 - b	14 - d	15 - a	16 - d	17 - c	18 - a	19 - a	20 - b
21 - d	22 - d	23 - b	24 - a	25 - c	26 - a	27 - c	28 - c	29 - d	30 - a
31 - c	32 - a	33 - d	34 - b	35 - a	36 - b	37 - a	38 - a	39 - b	40 - b
41 - b	42 - a	43 - a	44 - d	45 - c	46 - b	47 - d	48 - a	49 - b	50 - b
51 - a	52 - d	53 - b	54 - a	55 - b	56 - d	57 - d	58 - d	59 - d	60 - a
61 - a	62 - d	63 - c	64 - d	65 - d	66 - a	67 - b	68 - d	69 - c	70 - c
71 - c	72 - a	73 - b	74 - a	75 - c	76 - a	77 - d	78 - a	79 - c	80 - a
81 - d	82 - b	83 - d	84 - c	85 - a	86 - d	87 - d	88 - a	89 - a	90 - a
91 - b	92 - c	93 - d	94 - c	95 - a	96 - c	97 - b	98 - a	99 - b	100 - a
101 - b	102 - b	103 - b	104 - c	105 - b	106 - d	107 - d	108 - c	109 - b	110 - b
111 - a	112 - d	113 - b	114 - d	115 - a	116 - b	117 - a	118 - b	119 - d	120 - a
121 - a	122 - d	123 - c	124 - b	125 - b	126 - c	127 - a	128 - d	129 - a	130 - d
131 - b	132 - d	133 - d	134 - d	135 - d	136 - b	137 - b	138 - a	139 - c	140 - c
141 - c	142 - a	143 - d	144 - b	145 - c	146 - a	147 - c	148 - a	149 - c	150 - c

**DRUGS ACTING ON GIT AND AUTACOIDS**

1 - d	2 - b	3 - c	4 - b	5 - a	6 - b	7 - c	8 - b	9 - d	10 - b
11 - a	12 - c	13 - b	14 - d	15 - c	16 - b	17 - d	18 - b	19 - a	20 - a
21 - b	22 - b	23 - a	24 - d	25 - d	26 - a	27 - a	28 - b	29 - d	30 - b



# PHARMACEUTICAL CHEMISTRY

## PHYSICAL CHEMISTRY

- 1 PPM is equal to** [NIPER JEE-2023]  
(a) 0.0001% (b) 0.001%  
(c) 0.01% (d) 0.1%
- 1 PPM is equal to** [NIPER JEE-2023]  
(a) 1 gram in 100 ml (b) 1 mg in 100 ml  
(c) 1mg in 1000 g (d) 1 gm in one kg
- Ionic bonds are formed when** [NIPER JEE-2021]  
(a) Atoms share electrons  
(b) Electrons are completely transferred from one atom to another  
(c) A pair of electrons is shared unequally by two atoms  
(d) Hydrogen forms bonds with negatively charged atoms
- Vander wall bonds are type of** [NIPER JEE-2009]  
(a) Antibonding (b) Non-bonding  
(c) Bonding (d) Hydrogen bonding
- Correct order of energy in following bonds is** [NIPER JEE-2010]  
(a) H-H > C-H > C-C > C-Cl  
(b) H-H > C-H < C-C > C-Cl  
(c) H-H < C-H < C-C < C-Cl  
(d) H-H < C-H > C-C < C-Cl
- How many hydrogen bonds are possible in water** [NIPER JEE-2008, 2009]  
(a) Four (b) One  
(c) Three (d) Two
- Nuclei having either the number of protons or neutrons as odd have\_\_\_ spin** [NIPER JEE-2020]  
(a) Integral spin (b) Half integral spin  
(c) Zero spin (d) Positive spin
- The molecule with zero dipole moment is** [NIPER JEE-2019]  
(a) Chloroform (b) Methyl chloride  
(c) Carbon tetrachloride (d) Methylene chloride
- Solution contain 1 mole of substance per 1000 gm of solvent is called** [NIPER JEE-2021]  
(a) Molarity (b) Formality  
(c) Molality (d) Normality
- Concentration given in gram equivalent per volume of solution it is known as** [NIPER JEE-2020]  
(a) Molality (b) Molarity  
(c) Normality (d) Mole fraction
- Molarity of pure water is** [NIPER JEE-2006, 2009]  
(a) 55.56 M (b) 81.70 M  
(c) 56.55 M (d) 70.81M
- Normality of concentrated HCl** [NIPER JEE-2016]  
(a) 15.5N (b) 18N  
(c) 11N (d) 36N
- pH of 0.005 N HCl is** [NIPER JEE-2006]  
(a) 1 (b) 3  
(c) 1.3 (d) 2.3
- Which of the following is a colligative property** [NIPER JEE-2008]  
(a) Melting Point (b) Solubility  
(c) Osmotic Pressure (d) Partition coefficient
- Which of these is Permanent antifreeze** [NIPER JEE-2017]  
(a) Ethanol (b) Propylene glycol  
(c) liquid nitrogen (d) Ethylene glycol
- In saline solutions, the molarity of sodium chloride is** [NIPER JEE-2017]  
(a) 0.1 (b) 0.15  
(c) 0.2 (d) 0.3
- The pH of  $10^{-10}$  M NaOH solution is** [NIPER JEE-2017]  
(a) 10 (b) 7.01  
(c) 6.99 (d) 4

92. Which will not affect the degree of ionization  
 (a) Temperature (b) Concentration  
 (c) Type of solvent (d) Current
93. The pH of 0.0001 M NaOH is  
 (a) 4 (b) 10  
 (c) 12 (d) 11
94. Which of the following solution cannot act as a buffer  
 (a)  $\text{NaH}_2\text{PO}_4 + \text{H}_3\text{PO}_4$   
 (b)  $\text{CH}_3\text{COOH} + \text{CH}_3\text{COONa}$   
 (c)  $\text{HCl} + \text{NH}_4\text{Cl}$   
 (d)  $\text{H}_3\text{PO}_4 + \text{NaH}_2\text{PO}_4$
95. Le Chatelier's Principle is applicable to  
 (a) Heterogenous reaction  
 (b) Homogenous reaction  
 (c) Irreversible reaction  
 (d) System in equilibrium
96. The rate of a reaction that not involve gases is not dependent  
 (a) Pressure (b) Temperature  
 (c) Concentration (d) Catalyst
97. A catalyst increases the rate of a chemical reaction by  
 (a) Increasing the activation energy  
 (b) Decreasing the activation energy  
 (c) Reacting with reactants  
 (d) Reacting with products
98. Order of radioactive disintegration reaction is  
 (a) Zero (b) First  
 (c) Second (d) Third
99. The polarity of water molecule is due to  
 (a) Difference in electronegativity of oxygen and hydrogen atoms in water  
 (b) The readily ionizing behaviour of water  
 (c) The positive charge of water molecule  
 (d) The negative charge of water molecule
100. Cottrell's method is used for the measurement of  
 (a) Depression of freezing-point  
 (b) Elevation of boiling-point  
 (c) Lowering of vapour pressure  
 (d) Osmotic pressure

## INORGANIC CHEMISTRY

1. Example of Lewis acid is [NIPER JEE-2024]  
 (a)  $\text{BF}_3$  (b)  $\text{MgCl}_2$   
 (c)  $\text{NH}_3$  (d) None of these
2. Which of the following is NOT a transition element [NIPER JEE-2023]  
 (a) Iron (b) Copper  
 (c) Arsenic (d) Gold
3. Which of the following antflatulents is usually added to antacid [NIPER JEE-2020]  
 (a) Alginic acid (b) Sucralfate  
 (c) Simethicone (d) Misoprostol
4. Kjeldahl method is used to quantitate [NIPER JEE-2010, 2019, 2020, 2021]  
 (a) Nitrogen (b) Organic matter  
 (c) Metals (d) Sulphur
5. In Kjeldahl method, sample containing nitrogen is digested with [NIPER JEE-2020]  
 (a) Conc. NaOH (b) Conc.  $\text{H}_2\text{SO}_4$   
 (c) Fuming  $\text{HNO}_3$  (d) Strong  $\text{NH}_3$  solution
6. Which of the following acts as Lewis base [NIPER JEE-2015]  
 (a)  $\text{BF}_3$  (b)  $\text{CO}_2$  &  $\text{SO}_2$   
 (c)  $\text{NH}_3$  (d)  $\text{AlF}_3$
7. Monoacidic bases are called as because [NIPER JEE-2006]  
 (a) When they dissolve in water, produces one  $\text{H}^+$   
 (b) When they dissolve in water, produces one &  $\text{H}^+$  and  $\text{OH}^-$   
 (c) When they dissolve in water, produces one  $\text{OH}^-$   
 (d) Both (a) and (c)
8. Choose the correct formula for nitric oxide [NIPER JEE-2005]  
 (a)  $\text{N}_2\text{O}_2$  (b) NO  
 (c)  $\text{N}_2\text{O}$  (d) None of these
9. Main constituent of face powder is [NIPER JEE-2007]  
 (a) Talc (b) Zinc oxide  
 (c) Boric acid (d) Sodalime
10. Which of the following is most protophilic [NIPER JEE-2019]  
 (a)  $\text{CH}_3^-$  (b)  $\text{Cl}^-$  (c)  $\text{NH}_2^-$  (d)  $\text{OH}^-$

## MCQs FOR PRACTICE

3. The correct decreasing order of preference of functional groups during the IUPAC nomenclature of polyfunctional compounds is

- (a)  $-\text{COOH}$ ,  $-\text{SO}_3\text{H}$ ,  $-\text{CONH}_2$ ,  $-\text{CHO}$   
 (b)  $-\text{SO}_3\text{H}$ ,  $-\text{COOH}$ ,  $-\text{CONH}_2$ ,  $-\text{CHO}$   
 (c)  $-\text{CHO}$ ,  $-\text{COOH}$ ,  $-\text{SO}_3\text{H}$ ,  $-\text{CONH}_2$   
 (d)  $-\text{CONH}_2$ ,  $-\text{CHO}$ ,  $-\text{SO}_3\text{H}$ ,  $-\text{COOH}$

4. Which among the following is not a class of organic compound

- (a) Carbonyl compound (b) Amine compound  
 (c) Amide compound (d) Carbide compounds

5. What is the IUPAC name of the following compound



- (a) Bicyclo [2.2.2] octane  
 (b) Tricyclo [2.2.2] octane  
 (c) Bicyclo [2.2.0] octane  
 (d) Bicyclo [2.2.1] heptane

6. IUPAC name of the given structure is



- (a) Spiro [3.7]undecane (b) Spiro [3.6] decane  
 (c) Spiro [3.8]undecane (d) Spiro [2.9]undecane

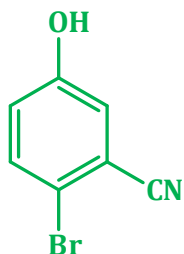
7. Alicyclic compounds are

- (a) Aromatic compounds  
 (b) Aliphatic like cyclic compounds  
 (c) Heterocyclic compounds  
 (d) None of the above

8. The IUPAC name of  $\text{CH}_3\text{OC}_2\text{H}_5$  is

- (a) Ethoxy methane (b) Methoxyethane  
 (c) Ethyl methyl ether (d) Methyl ethyl ether

9. The IUPAC name of the following compound is



- (a) 4-Bromo-3-cyanophenol

- (b) 2-Bromo-5-hydroxy benzonitrile  
 (c) 2-Cyano-4-hydroxy bromobenzene  
 (d) 6-Bromo-3-hydroxy benzonitrile

10. Which of the following is an alicyclic compound

- (a) Benzene (b) Furan  
 (c) Cyclohexane (d) Hexane

11. Which of the following is a cumulated diene

- (a) 1,3-Pentadiene (b) 1,4-Pentadiene  
 (c) 2,3-Pentadiene (d) 1,5-Hexadiene

12. Vinyl carbinol is

- (a)  $\text{HO}-\text{CH}_2-\text{CH}=\text{CH}_2$  (b)  $\text{CH}_3\text{C}(\text{OH})=\text{CH}_2$   
 (c)  $\text{CH}_3-\text{CH}=\text{CH}-\text{OH}$  (d)  $\text{CH}_3-\text{C}(\text{CH}_2\text{OH})=\text{CH}_2$

13. Systematic name of a compound derived from its structural formula. It is called

- (a) Trivial rule (b) IUPAC rule  
 (c) Homologous rule (d) All of these

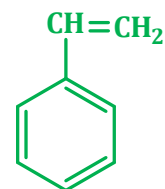
14. Arrangement of Prefixes, Root word and Suffixes

- (a) Prefix (es) + Root word + Primary suffix + Secondary suffix  
 (b) Root word + Prefix (es) + Primary suffix + Secondary suffix  
 (c) Primary suffix + Secondary suffix + Prefix (es) + Root word  
 (d) Root word + Primary suffix + Secondary suffix + Prefix (es)

15. What is the IUPAC name of Lactic acid

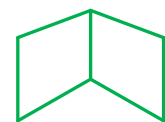
- (a) 2-Hydroxypropanoic acid  
 (b) 2-Hydroxybutanoic acid  
 (c) 3-Hydroxypropanoic acid  
 (d) Ethanol

16. Identify the given structure name



- (a) Vinyl (b) Allyl  
 (c) Styrene (d) Catecholamine

17. The IUPAC name of the following compound is



- (a) Bicyclo [2.2.0] octane  
 (b) Bicyclo [0.2.2] hexane  
 (c) Bicyclo [2.1.1] hexane  
 (d) Bicyclo [2.2.0] hexane

**Electronic Displacement in Covalent Bonds,**
**Cleavage of Covalent bonds**
**47. Inductive effect is**

- (a) Temporary Effect  
 (b)  $\sigma - \pi$  Delocalization  
 (c) Present in saturated compounds only  
 (d) Permanent effect

**48. -I power is greatest in**

- (a) sp Orbitals (b) sp<sup>2</sup> Orbitals  
 (c) sp<sup>3</sup> Orbitals (d) All Have Same

**49. Which of the following groups has a +I effect**

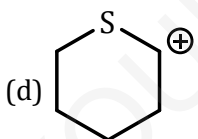
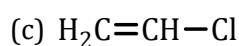
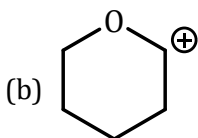
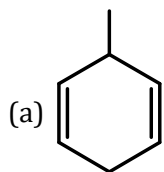
- (a) -CH<sub>3</sub> (b) -OH  
 (c) -NH<sub>2</sub> (d) -Cl

**50. Mesomeric effect involves the delocalisation of**

- (a) Protons (b) Sigma electrons  
 (c) Pi electrons (d) Neutron

**51. Resonance in most of the organic molecules**

- (a) Increases stability (b) Decreases stability  
 (c) Increases reactivity (d) None of these

**52. Resonance is not possible in**

**53. Hyperconjugation involves overlap of the following orbitals**

- (a)  $\sigma - \sigma$  (b)  $\sigma - p$  (c) p-p (d)  $\pi - \pi$

**54. Electromeric effect**

- (a) Comes into play at the demand of attacking reagent  
 (b) Involves displacement of electrons in a sigma bond  
 (c) Comes into play in the molecule when at least one atom has unshared pair of electrons  
 (d) Involves the distortion of the electron cloud

**55. Heterolytic fission of carbon-chlorine bond produces**

- (a) Two free radicals  
 (b) Two carbocations  
 (c) Two carbanions  
 (d) One cation and one anion

**56. Bond length of C-C bonds in hydrocarbon is**

- (a) sp<sup>3</sup> - sp<sup>3</sup> > sp<sup>2</sup>-sp<sup>2</sup> > sp-sp  
 (b) sp-sp > sp<sup>2</sup>-sp<sup>2</sup> > sp<sup>3</sup>-sp<sup>3</sup>  
 (c) sp<sup>3</sup> - sp<sup>3</sup> > sp-sp > sp<sup>2</sup> - sp<sup>2</sup>  
 (d) sp - sp > sp<sup>3</sup> - sp<sup>3</sup> > sp<sup>2</sup> - sp<sup>2</sup>

**57. The correct bond length order is**

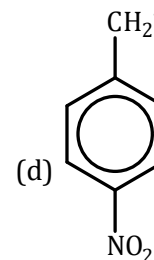
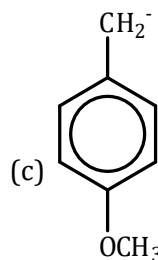
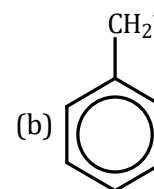
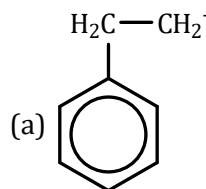
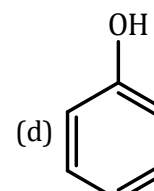
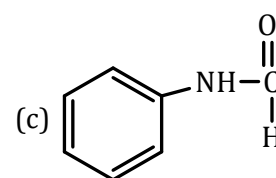
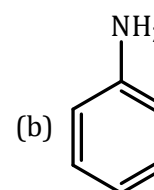
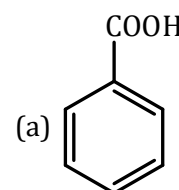
- (a) Single bond > Triple bond > Double bond  
 (b) Double bond > Single bond > Triple bond  
 (c) Single bond > Double bond > Triple bond  
 (d) Triple bond > Double bond > Single bond

**58. Electron releasing groups stabilizes free radicals by**

- (a) Positive inductive (+I) effect  
 (b) Negative Mesomeric (-m) effect  
 (c) Positive Mesomeric (+m) effect  
 (d) Negative inductive (-I) effect

**59. Which of the following statements is false about resonance**

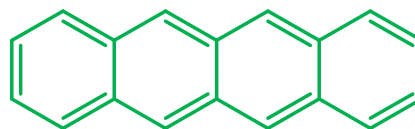
- (a) It increases stability of the molecule  
 (b) It leads to similar type of bonding  
 (c) It increases reactivity of the molecule  
 (d) It decreases reactivity of the molecule

**60. The most stable carbanion among the following is**

**61. Which of the following having highest pH value**


71. **Pschorr synthesis can be used to synthesize**  
 (a) Aniline (b) Naphthalene  
 (c) Furan (d) Phenanthrene
72. **Product obtained by furan and benzyne diels alder adduct**  
 (a) Biphenyl (b) Naphthalene  
 (c) Anthracene (d) Phenanthrene
73. **Naphthalene undergoes nitration with  $\text{HNO}_3/\text{H}_2\text{SO}_4$  at  $60^\circ\text{C}$  to give mainly**  
 (a) 1-nitronaphthalene  
 (b) 1,2-dinitronaphthalene  
 (c) 2-nitronaphthalene  
 (d) 1,5-dinitronaphthalene
74. **Sulfonation of naphthalene gives thermodynamic product as**  
 (a) Naphthalene-1-sulfonic acid  
 (b) Naphthalene-2-sulfonic acid  
 (c) Naphthalene-3-sulfoxide  
 (d) Naphthalene-4-sulfoxide
75. **Naphthalene undergoes oxidation with  $\text{Na}_2\text{Cr}_2\text{O}_7/\text{H}_2\text{SO}_4$  to produce**  
 (a) Phthalic acid  
 (b) Phthalic anhydride  
 (c) Tetralin  
 (d) Phenyl acetic acid
76. **Arenes does not undergo**  
 (a) Electrophilic substitution reaction  
 (b) Electrophilic addition reaction  
 (c) Halogenation  
 (d) Cycloaddition
77. **Oxidation reaction of phenanthrene produces**  
 (a) Phenanthrene oxide  
 (b) 2,3-Phenanthraquinone  
 (c) 7,8-dioxophenanthrene  
 (d) Diphenic acid
78. **Treatment of benzene with Phthalic anhydride in the presence of  $\text{AlCl}_3$  proceeds toward a reaction to give anthraquinone is**  
 (a) Friedel craft reaction  
 (b) Haworth reaction  
 (c) Dow process  
 (d) Skraup synthesis
79. **The monohydroxy derivatives of naphthalene are called as**  
 (a) Naphthylamine (b) Naphthol

- (c) Anthraquinone (d) Alizarin

80. **Name of the given compound is**







- (a) Phenanthrene  
 (b) Naphthalene  
 (c) 9, 10-dihydrophenanthrene  
 (d) Naphthacene



### Structural isomerism

- Metamerism is commonly observed in which of the following types of functional groups** [NIPER JEE-2021]  
 (a) Alcohols and alkenes  
 (b) Ketones and aldehydes  
 (c) Ethers, sulphides, amines, and esters  
 (d) Carboxylic acids and esters
- Neopentane and 2-methyl butane are the pair of which of the following** [NIPER JEE-2020]  
 (a) Positional isomers (b) Chain isomers  
 (c) Isomers (d) Diastereomers
- Which of the following are isomers of each other** [NIPER JEE-2016]  
 (a) 2-propanol and 1-propanol  
 (b) Methanol and ethanol  
 (c) Diethyl ether and Methanol  
 (d) Acetone and Formaldehyde
- Which of the following compounds will show metamerism** [NIPER JEE-2016]  
 (a)  $\text{CH}_3\text{COOC}_2\text{H}_5$  (b)  $\text{C}_2\text{H}_5\text{-S-C}_2\text{H}_5$   
 (c)  $\text{CH}_3\text{-O-CH}_3$  (d)  $\text{CH}_3\text{-O-C}_2\text{H}_5$
- Ethyl acetoacetate shows which type of tautomerism** [NIPER JEE-2010]  
 (a) imine-amine (b) keto-enol  
 (c) cis-trans (d) syn-anti
- Keto-enol isomerism is shown by which of the following** [NIPER JEE-2017]  
 (a)  $\text{C}_6\text{H}_5\text{COCH}_3$  (b)  $\text{CH}_3\text{CH}_2\text{NO}_2$

32. The molecular formula of purine is  
 (a)  $C_5H_4N_4$  (b)  $C_6H_5N_3$   
 (c)  $C_7H_6N_2$  (d)  $C_4H_3N_5$
33. Which of the following best describes the molecular structure of pteridine  
 (a) Fused pyrimidine and pyrazine rings  
 (b) Isolated pyrimidine and pyrazine rings  
 (c) Fused pyrimidine and pyrrole rings  
 (d) Fused pyrazole and pyrimidine rings
34. Which is an example of aromatic nucleophilic substitution reaction  
 (a) Chichibabin  
 (b) Gattermann Koch reaction  
 (c) Kolbe's reaction  
 (d) Friedel-Crafts reaction
35. Guareschi Thorpe Synthesis is for  
 (a) Pyrazole (b) Imidazole  
 (c) Pyridine (d) Thiazole
36. Friedel crafts reaction occurs mainly at \_\_\_\_\_ position in Pyrrole  
 (a) C-2 (b) C-3 (c) C-4 (d) C-5
37. Nucleophilic substitution in case of isoquinoline occur  
 (a) C-1 (b) C-2 (c) C-5 (d) C-4
38. What is the product of catalytic hydrogenation of furan  
 (a) Furfural  
 (b) Tetrahydrofuran (THF)  
 (c) Furoic acid  
 (d) Furan
39. What is the product of the Reimer-Tiemann reaction involving pyrrole  
 (a) 2-Formylpyrrole (b) Pyrrolidine  
 (c) Maleimide (d) Tetrahydropyrrole
40. Indole can be synthesized by  
 (a) Bernthsen (b) Hinsber  
 (c) Blumlein lewy (d) Madelung synthesis
41. Purine can be prepared by  
 (a) Dobner miller (b) Pomeranz  
 (c) Bischler synthesis (d) Traube synthesis
42. Nitration of isoquinoline occurs at  
 (a)  $C_5$  and  $C_8$  (b)  $C_6$  and  $C_7$   
 (c)  $C_6$  and  $C_8$  (d)  $C_5$  and  $C_7$
43. Robinson gabriel synthesis for  
 (a) Pyrazole (b) Imidazole  
 (c) Oxazole (d) Thiazole
44. Match the incorrect pair  
 (a) Robinson-Gabriel Synthesis – Oxazole  
 (b) Guareschi Thorpe Synthesis – Pyridine  
 (c) Bischler-Napieralski synthesis – Quinoline  
 (d) Bernthsen synthesis – Acridine
45. Piperidine is \_\_\_\_\_ compound  
 (a) Aliphatic heterocyclic compound  
 (b) Aromatic heterocyclic compound  
 (c) Saturate heterocyclic compound  
 (d) Both (a) and (c)
46. Purine is \_\_\_\_\_ compound  
 (a) Aliphatic heterocyclic compound  
 (b) Aromatic heterocyclic compound  
 (c) Saturate heterocyclic compound  
 (d) All of these
47. Which of the following is NOT an example of a trivially named heterocyclic compound  
 (a) Picoline (b) Furfural  
 (c) Pyrrole (d) Ethanolamine
48. The three membered ring containing compound in addition of carbon (C) and oxygen(O) atom, the prefix is called  
 (a) Aza (b) Oxa  
 (c) Thia (d) Selena
49. Suffixes for fully unsaturated compounds without N and ring size 5  
 (a) -irine (b) -ine  
 (c) -ole (d) -inane
50. Which of the following compound name is 2-H azirine  
 (a)  (b)   
 (c)  (d) 
51. How are multiple heteroatoms of the same type indicated in the systematic nomenclature  
 (a) By using the prefix "Bi-"  
 (b) By using the prefix "oxa"  
 (c) By adding numerical subscripts after the prefix  
 (d) By using the prefix "Di-" followed by the heteroatom name
52. Four-membered fully saturated heterocycle containing one oxygen is called  
 (a) Oxirene (b) Oxirane  
 (c) Oxetine (d) Oxetane

93. What is the main product of Frankland's reaction  
 (a) Alkane (b) Alkene  
 (c) Alkyne (d) Alcohol
94. Which type of compound is produced in the Fittig reaction  
 (a) Alkane (b) Biaryl compound  
 (c) Alkyne (d) Alcohol
95. Conversion of phenyl acetate into o-hydroxyl acetophenone or p-ortho hydroxyl acetophenone in presence of anhydrous  $AlCl_3$ , the reaction known as  
 (a) Friedel crafts reaction  
 (b) Fries rearrangement  
 (c) Reimer-Tiemann reaction  
 (d) Oppenauer oxidation
96. Intermediate formed in Friedel-Crafts reaction is  
 (a) Carbanion (b) Carbocation  
 (c) Free radical (d) Nitrene
97. What is the attacking reagent in Friedel craft acylation reaction  
 (a) Acylium ion (b) Keto-Enol  
 (c) Carbanions (d) Nitrene
98. What is the final product obtained in the Gabriel Phthalimide Synthesis after refluxing potassium phthalate with KOH  
 (a) Phthalimide  
 (b) Potassium phthalimide  
 (c) N-alkyl phthalimide  
 (d)  $1^\circ$  amine
99. Replacement of the diazonium group by halogen in presence of copper powder is  
 (a) Sandmeyer reaction  
 (b) Gattermann reaction  
 (c) Hofmann reaction  
 (d) Gabriel reaction
100. Which reagent is commonly used in the Gattermann-Aldehyde reaction  
 (a) Carbon monoxide (CO)  
 (b) Hydrogen gas ( $H_2$ )  
 (c) Formaldehyde ( $CH_2O$ )  
 (d) Carbon dioxide ( $CO_2$ )

## MEDICINAL CHEMISTRY

1. Which heterocyclic ring is used for Miconazole synthesis [NIPER JEE-2024]  
 (a) Imidazole (b) Pyrazole  
 (c) Thiazole (d) Triazole
2. Ring present in Levocetirizine [NIPER JEE-2024]  
 (a) Piperazine (b) Purin  
 (c) Pyridine (d) Pyrimidine
3. Chloramphenicol follow which reaction for inactivation [NIPER JEE-2023]  
 (a) Oxidation (b) Reduction  
 (c) Hydrolysis (d) Decyclization
4. Metformin is a drug of which class [NIPER JEE-2023]  
 (a) Thiazolidinedione (b) DPP - 4 Inhibitors  
 (c) Biguanides (d) Sulfonylureas
5. Which ring present in warfarin [NIPER JEE-2023]  
 (a) Benzopyran-2-one (b) Benzopyran-3-one  
 (c) Benzofuran-3-one (d) Benzofuran-2-one
6. QSAR full form [NIPER JEE-2023]  
 (a) Quantitative structure-activity relationship  
 (b) Qualitative structure-activity relationship  
 (c) Qualitative structure-action relationship  
 (d) None of these
7. Terbutaline contain nitrogen atom [NIPER JEE-2023]  
 (a) 1 (b) 2  
 (c) 3 (d) 4
8. Bioisostere of -COOH group is [NIPER JEE-2021]  
 (a) 1H-tetrazole (b) Acid amide  
 (c) Sulphonic acid (d) All of these
9. Which of the following group is not usually used during CADD [NIPER JEE-2021]  
 (a) Molecular modelling  
 (b) Molecular design  
 (c) Rational drug design  
 (d) Organic Reactions
10. Which drug not prepared by computer aided drug design [NIPER JEE-2018]  
 (a) Borinane (b) Borepin  
 (c) Azocine (d) Azonine

98. Catecholamine generally contains side chain as

- (a) Methyl amine (b) Ethyl amine  
(c) Propyl amine (d) Butyl amine

99. Which of the following imidazoline derivative is selective alpha-2 agonist

- (a) Naphazoline (b) Clonidine

- (c) Xylometazoline (d) Tolazoline

100. Sulindac is an example of

- (a) Mutual prodrug  
(b) Bio precursor prodrug  
(c) Carrier-linked prodrug  
(d) Dry prodrug

## PHARMACEUTICAL ANALYSIS

### Spectroscopy

#### UV Spectroscopy

1. Extended conjugation causes [NIPER JEE-2023]

- (a) Bathochromic (b) Hypochromic  
(c) Hyperchromic (d) Hypsochromic

2. Choose the correct Energy sequence for given process [NIPER JEE-2005, 2006, 2008, 2011]

- (a) NMR > IR > UV (b) UV < IR < NMR  
(c) UV < IR < NMR (d) UV > IR > NMR

3. p-Phellandrine shows  $\lambda_{max}$  at 234nm, it means [NIPER JEE-2010]

- (a) It shows unsaturation  
(b) It shows two double bond and one methyl group  
(c) It shows unsaturation and two methyl group  
(d) Conjugated double bond and one alkyl group

4. Detector used in UV spectroscopy is [NIPER JEE-2016]

- (a) Photo voltaic detector  
(b) Pyroelectric  
(c) Thermistor  
(d) All of these

5. Shifting of  $\lambda_{max}$  towards red wavelength is termed as [NIPER JEE-2019]

- (a) Bathochromic shift (b) Hypsochromic shift  
(c) Hyperchromic shift (d) Hypochromic shift

6. Bathochromic shift is also known as [NIPER JEE-2022]

- (a) Yellow shift (b) Blue shift  
(c) Green shift (d) Red shift

7. Which of the following technique is used to determine non-UV active substances [NIPER JEE-2006]

- (a) Derivatization (b) HPLC

- (c) Raman (d) IR

8. What is the additional value of alpha methyl for  $\alpha$ ,  $\beta$ -unsaturated carbonyl compound according to Woodward Fischer rules [NIPER JEE-2005]

- (a) 5 (b) 10 (c) 12 (d) 18

9. Choose correct option for chromophore [NIPER JEE-2006]

- (a) Modified the ability of that compound to absorb light  
(b) An atom or group whose presence is responsible for the colour of a compound  
(c)  $-NH_2$ , OH and Halogen are chromophoric compound  
(d) All of the above

10. Auxochrome is the group that shows the following effect on absorption band [NIPER JEE-2006]

- (a) Decrease absorption and wavelength  
(b) Increase wavelength and decreases absorption  
(c) Decrease wavelength and increase absorption  
(d) Increase absorption and wavelength

11. As per Woodward-Fieser's rules, base value for homoannular dienes is [NIPER JEE-2003]

- (a) 202 nm (b) 217 nm  
(c) 222 nm (d) 253 nm

12. Which will lead to inaccuracy in UV spectroscopy [NIPER JEE-2019]

- (a) Scattering  
(b) Passing without Diffraction  
(c) Coagulation of solute  
(d) All of these

13. Which of the following amino acid can be detected in UV-VIS Spectroscopy [NIPER JEE-2019]

- (a) Phenylalanine (b) Histidine  
(c) Arginine (d) Leucine

14. Which of following drug does not absorb UV range [NIPER JEE-2020]  
 (a) Aspirin (b) Paracetamol  
 (c) Chloral hydrate (d) Phenobarbitone
15. Which amino acid shows highest degree of UV absorption [NIPER JEE-2020]  
 (a) Tryptophan (b) Tyrosine  
 (c) Serine (d) Methionine
16. The given wavelength range is visible range [NIPER JEE-2006, 2007]  
 (a) 200-400 nm (b) 400-800 nm  
 (c) 200-800 nm (d) 320-780 nm
- MCQs FOR PRACTICE**
17. The possible transitions for water molecule in UV-visible region are  
 (a)  $\sigma \rightarrow \sigma^*$  (b)  $n \rightarrow \pi^*$ ,  $\pi \rightarrow \pi^*$   
 (c)  $\sigma \rightarrow \sigma^*$ ,  $n \rightarrow \pi^*$  (d)  $n \rightarrow \sigma^*$
18. The  $\lambda_{\max}$  in  $\alpha$ ,  $\beta$ -unsaturated acids can be determined by  
 (a) Wood ward fisher (b) Nielsen rules  
 (c) Fieser-Kuhn rules (d) All of these
19. The increment for  $\alpha$  alkyl substitution on enones is  
 (a) 18 (b) 12 (c) 10 (d) 5
20. Which of the following spectroscopy techniques is associated with molecular emission  
 (a) UV-Visible spectroscopy  
 (b) IR spectroscopy  
 (c) Fluorescence spectroscopy  
 (d) X-ray diffraction
21. Diffraction gratings work on the basis of  
 (a) Max-Well Boltzmann's equation  
 (b) Bragg's equation  
 (c) Noise-Whitney equation  
 (d) Beer's law
22. Which of the following is a real limitation to Beer's law  
 (a) Fluorescence  
 (b) Analyte dissociation  
 (c) Polychromatic radiation is used as source  
 (d) Analyte at high concentrations
23. During relaxation, the electron spin is reversed in  
 (a) Fluorescence (b) Phosphorescence  
 (c) IR (d) NMR
24. Number of waves per cm is given as  
 (a) Wavelength (b) Frequency  
 (c) Wave Number (d) Magnetic field
25. Dimerization of the sample produce  
 (a) Absence of absorbance  
 (b) Hypsochromic shift  
 (c) Bathochromic shift  
 (d) No effect
26. Which of the following is a non-dispersive wavelength selector  
 (a) Gratings (b) Prisms  
 (c) Filters (d) All of these
27. All of the following are useful as a source for UV-Visible, EXCEPT  
 (a) Globar source  
 (b) Xenon discharge lamp  
 (c) Deuterium discharge lamp  
 (d) Tungsten filament lamp
28. Which of the following material is used to coat the cathode in photo tube  
 (a) Copper (b) Sodium  
 (c) Bromine (d) Caesium
29. Iodine is filled in the tungsten filament lamps to  
 (a) Increase the emission wavelength spectra  
 (b) Re-deposit the sublimed tungsten  
 (c) Decrease the decomposition of the tungsten  
 (d) All of these
30. Which of the following leads to chemical deviation from Beer's law  
 (a) Change in refractive index  
 (b) Change in pH of the solution  
 (c) Polychromatic radiation  
 (d) Both (a) and (b)
31. Which of the following detector has fast response time  
 (a) Photomultiplier tube (b) Photo tube  
 (c) Photo diode array (d) Barrier layer cell
32. The light which reaches the detector without passing through the cell is known as  
 (a) Dark radiation (b) Stray radiation  
 (c) Photoluminescence (d) Chemiluminescence
33. The compound used to calibrate absorbance scale of the UV-visible instrument is  
 (a) HCl (b)  $K_2Cr_2O_7$   
 (c) KCl (d)  $KMnO_4$

393. Which of the following burner is most widely used in flame photometry

- (a) Consumption burner
- (b) Total consumption burner
- (c) Laminar burner
- (d) Laminar flow burner

394. The emitted radiation in fluorescence will be

- (a) Longer
- (b) Shorter
- (c) Longer and shorter
- (d) None of these

395. The phenomenon of emission of light radiation by substance, when excitation occurs is called as

- (a) Fluorescence
- (b) Luminescence
- (c) Phosphorescence
- (d) Absorption

396. Self-quenching occurs when

- (a) Low concentration is present
- (b) High concentration is present
- (c) Medium concentration is present

(d) None of these

397. Which of the following compound is well susceptible to oxygen

- (a) Naphthalene
- (b) Anthracene
- (c) Phenanthrene
- (d) Benzene

398. The shape of a sample cell in spectrophotometer is

- (a) Rectangular
- (b) Square
- (c) Triangle
- (d) Circular

399. Most commonly used substance to perform Fluorometry is

- (a) Quinine
- (b) Squill
- (c) Cinchona
- (d) Nux vomica

400. Polychromatic means

- (a) Different colours in the wavelength
- (b) Different colours in the light source
- (c) Light of several Wavelength
- (d) None of these

## Pharmaceutical Chemistry Answer Key

### PHYSICAL CHEMISTRY

1 - a	2 - c	3 - b	4 - b	5 - a	6 - a	7 - b	8 - c	9 - c	10 - c
11 - a	12 - c	13 - d	14 - c	15 - d	16 - b	17 - b	18 - c	19 - b	20 - d
21 - a	22 - a	23 - a	24 - d	25 - a	26 - c	27 - b	28 - a	29 - a	30 - c
31 - b	32 - d	33 - b	34 - b	35 - a	36 - c	37 - b	38 - b	39 - d	40 - b
41 - d	42 - a	43 - b	44 - c	45 - c	46 - d	47 - d	48 - a	49 - b	50 - a
51 - a	52 - c	53 - c	54 - c	55 - b	56 - c	57 - c	58 - c	59 - a	60 - b
61 - c	62 - d	63 - b	64 - c	65 - a	66 - a	67 - b	68 - a	69 - c	70 - c
71 - a	72 - c	73 - b	74 - a	75 - b	76 - b	77 - a	78 - d	79 - d	80 - b
81 - d	82 - d	83 - b	84 - c	85 - b	86 - b	87 - a	88 - c	89 - d	90 - c
91 - a	92 - d	93 - b	94 - c	95 - d	96 - a	97 - b	98 - b	99 - a	100 - b

### INORGANIC CHEMISTRY

1 - a	2 - c	3 - c	4 - a	5 - b	6 - c	7 - c	8 - b	9 - a	10 - c
11 - a	12 - b	13 - a	14 - c	15 - c	16 - c	17 - a	18 - c	19 - b	20 - b
21 - b	22 - d	23 - a	24 - b	25 - b	26 - a	27 - c	28 - c	29 - c	30 - b
31 - a	32 - b	33 - c	34 - d	35 - b	36 - d	37 - a	38 - b	39 - a	40 - c
41 - c	42 - b	43 - c	44 - d	45 - c	46 - a	47 - a	48 - d	49 - a	50 - c

### ORGANIC CHEMISTRY

#### Classification and Nomenclature of Organic Compounds

1 - b	2 - b	3 - a	4 - d	5 - a	6 - a	7 - b	8 - b	9 - b	10 - c
11 - c	12 - a	13 - b	14 - a	15 - a	16 - c	17 - d	18 - c	19 - c	20 - b



# PHARMACOGNOSY

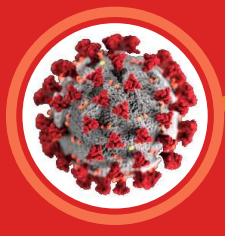
## General Pharmacognosy

- Which of the following plants exhibit a well differentiated structure of true roots, stems, and leaves** [NIPER JEE- 2023]  
(a) Fungi (b) Gymnosperms  
(c) Green algae (d) Mosses
- Who is the father of medicine** [NIPER JEE- 2023]  
(a) Seydler (b) Hippocrates  
(c) Galen (d) Aristotle
- Which is not the advantage of vegetative method of propagation** [NIPER JEE- 2023]  
(a) There is no variation between plants grown and the parent plant  
(b) It is possible to avail the modifying influence of root stocks on scion  
(c) The plants are less resistant against the disease as compared to seeding plants  
(d) Plants bear early as compared to seeding plants
- In the structure of cardiac glycosides** [NIPER JEE- 2019]  
(a) Rings A/B and C/D are cis fused while rings B/C are trans fused  
(b) Rings A/B and C/D are trans fused while rings B/C are cis fused  
(c) Rings A/B, C/D and B/C are cis fused  
(d) Rings A/B, C/D and B/C are trans fused
- The formulae for calculating stomatal index is** [NIPER JEE- 2024]  
(a)  $\frac{S+100}{E+S}$  (b)  $\frac{S-100}{E+S}$   
(c)  $\frac{S \div 100}{E \times S}$  (d)  $\frac{S \times 100}{E+S}$
- According to WHO guideline the limit of pesticide residue is** [NIPER JEE- 2024]  
(a) NMT 1% (b) NMT 0.3%  
(c) NMT 10% (d) NMT 0.7%
- Plants unique constituent is** [NIPER JEE- 2019]  
(a) Peroxisome (b) Lysosome  
(c) Glyoxysomes (d) Cell membranes
- One of the following is function of trichomes** [NIPER JEE- 2003]  
(a) Absorb water and minerals  
(b) Defence against insects  
(c) Reflect radiation, lower plant temperature, and reduce water loss  
(d) All of these
- Plant tissue culture is based on principal of** [NIPER JEE- 2021]  
(a) Cell or tissue can be grown into complete plant under *invitro* condition  
(b) Cell or tissue can be grown into complete plant under *in-vivo* condition  
(c) Cell or tissue can be grown into complete plant under *ex-vivo* condition  
(d) Seed can be converted into complete plant under *invitro* condition
- Ash value is related to** [NIPER JEE- 2019, 2020]  
(a) Melting point  
(b) Mineral matter  
(c) Moisture content  
(d) Foreign organic matter
- Traditional medicine means** [NIPER JEE- 2022]  
(a) Used recently after experimental proof  
(b) Used on the basis of practice and cultural activities  
(c) Both (a) and (b)  
(d) Use of synthesized drugs
- Which of the following also called heart wood** [NIPER JEE- 2022]  
(a) Sapwood (b) Duramen  
(c) Alburnum (d) Late wood

72. **Most common sugar in glycoside are**  
 (a)  $\alpha$  - D glucose (b)  $\beta$  - D glucose  
 (c)  $\beta$  - d glucose (d)  $\alpha$  - d glucose
73. **Which of the following flavone glycosides is commonly associated with a yellow color**  
 (a) Digitalis (b) Aloin  
 (c) Chirata (d) Rutin
74. **All glycosides are Colourless. EXCEPT**  
 (a) Steroidal glycoside  
 (b) Cardiac glycoside  
 (c) Flavonoids and Anthraquinone  
 (d) Saponin glycoside
75. **Presence of star spot in vascular bundle is special feature of which plant**  
 (a) Cascara (b) Rhubarb  
 (c) Aloes (d) Senna
76. **The griping and emetic effect of cascara is reduce due to**  
 (a) Reduction of anthranol to anthraquinone  
 (b) Oxidation of anthranol to anthraquinone  
 (c) Oxidation of Cascara  
 (d) Reduction of Cascara
77. **In Aloe the mucilage containing parenchymatous cells are present in**  
 (a) Central parenchymatous region  
 (b) Pericyclic cells  
 (c) Epidermis  
 (d) Vascular bundles
78. **Scillarenin is active constituent obtained from**  
 (a) *Holarrhena antidysentrica*  
 (b) *Cymbopogen flexuosus*  
 (c) *Linum usitatissimum*  
 (d) *Urginea indica*
79. **Red squill powders is marketed as Rodenticide. Its Rodenticide action is due to**  
 (a) Scillaren A (b) Scillarin  
 (c) Scilliroside (d) Brucin
80. **C<sub>3</sub>O-glycoside digitoxin is used for**  
 (a) Cardiac action  
 (b) Hypotensive action  
 (c) Precipitating steroids from solution  
 (d) Precipitating Anthraquinone glycosides
81. **The sugar moiety of *Digitalis purpurea* is**  
 (a) 2, 6-deoxy allose (b) 2, 6-deoxy glucose  
 (c) 2, 6-deoxy Rhamnose (d) 2, 6-deoxy galactose
82. **Frothing on shaking of powder with water indicates presence of**  
 (a) Alkaloids (b) Saponin  
 (c) Carbohydrate (d) Tannin
83. **Which herb is use for production of steroids in industry**  
 (a) Liquorice (b) Brahmi  
 (c) Digitalis (d) Dioscorea
84. **The drug which root shows morphology like anthrophonorphic with immunomodulatory action**  
 (a) Dioscorea (b) Ginseng  
 (c) Liquorice (d) Senega
85. **What compound in Senega is responsible for its sweet taste**  
 (a) Polygallitol (b) Dextrose  
 (c) Sucrose (d) Fructose
86. **The characteristic odor of the drug Senega is primarily due to the presence of which compound**  
 (a) Eucalyptol (b) Methyl salicylate  
 (c) Thymol (d) Menthol
87. **Soap bark is synonym of**  
 (a) Liquorice (b) Quillaia bark  
 (c) Senega (d) Reserpine
88. **What is the primary compound responsible for the acrid taste in Quillaia bark**  
 (a) Quillaia sapotoxin (b) Quillaic acid  
 (c) Quillaia saponin (d) Quillaia flavonoid
89. **Tinnevely Senna is**  
 (a) Indian senna (b) Arabian senna  
 (c) Alexanderian senna (d) All of these
90. **Anthraquinone glycosides are absent in**  
 (a) Alxenderian senna (b) Dog senna  
 (c) Indian Senna (d) Palthe senna

## Alkaloids

1. **Which alkaloids is liquid in nature** [NIPER JEE- 2024]  
 (a) Morphine (b) Caffeine  
 (c) Nicotine (d) Quinine
2. **All of the following are chemical test for alkaloid, EXCEPT** [NIPER JEE- 2024]  
 (a) Shinoda test (b) Mayer reagent test  
 (c) Hager reagent test (d) Wagner reagent test



# OTHER SUBJECTS

## HUMAN ANATOMY AND PHYSIOLOGY

- The part of brain responsible for movement of body** [NIPER JEE-2024]  
(a) Cerebrum (b) Medulla oblongata  
(c) Cerebellum (d) Hypothalamus
- Two daughter cells are separated in which state** [NIPER JEE-2023]  
(a) Prophase (b) Metaphase  
(c) Telophase (d) Anaphase
- Which of these makes SARS often difficult to diagnose** [NIPER JEE-2023]  
(a) Mistakes in lab tests  
(b) Asymptomatic nature  
(c) Symptoms similar to common cold and flu  
(d) All of these
- Binomial nomenclature is related to** [NIPER JEE-2007]  
(a) Animal kingdom (b) Plant kingdom  
(c) Species and Genus (d) Biological species
- Choose the CORRECT characteristic feature of prokaryotic cell** [NIPER JEE-2018]  
(a) Cell wall (b) Capsule  
(c) Pili (d) All of these
- Biological classification nomenclature of drug is given according to** [NIPER JEE-2008]  
(a) Chemical structure (b) Biological source  
(c) Mode of action (d) Variety and species
- Sister chromatid is associated with** [NIPER JEE-2019]  
(a) Kinetochore (b) Centromere  
(c) Centriole (d) Anaphase
- Chromosomes are aligned parallel to each others by separating in lines to centromere in the stage of cell division** [NIPER JEE-2010]  
(a) Anaphase (b) Telophase  
(c) Metaphase (d) Interphase
- The phase of cell division which is non dividing** [NIPER JEE-2017]  
(a) Metaphase (b) Anaphase  
(c) Prophase (d) Interphase
- Which of the following is the principal component of cell membrane** [NIPER JEE-2021]  
(a) Phospholipid (b) Glycolipid  
(c) Lipoprotein (d) All of these
- Which of the following is NOT the part of cytoskeleton** [NIPER JEE-2018]  
(a) Microtubule  
(b) Actin  
(c) Intermediate filament  
(d) None of these
- The freshly synthesized secretions are stored in cell as folds in** [NIPER JEE-2015]  
(a) Vesicles  
(b) Endoplasmic reticulum  
(c) Lysosomes  
(d) Cell membrane
- Membrane protein serve as** [NIPER JEE-2008]  
(a) Receptor (b) Transporter  
(c) Adhesive (d) All of these
- ETC is located at** [NIPER JEE-2021]  
(a) Inner mitochondrial membrane  
(b) Outer mitochondrial membrane  
(c) Intermembranous space  
(d) Mitochondrial matrix
- Osmolarity of blood plasma is** [NIPER JEE-2006]  
(a) 225-250 mOsm/kg (b) 250-279 mOsm/kg  
(c) 275- 299 mOsm/kg (d) 302-319mOsm/kg
- Osmotic pressure of blood is** [NIPER JEE-2006]  
(a) 2.5 atm (b) 7.65 atm  
(c) 1 atm (d) 5.79 atm

- 116. In a sarcomere, thick filaments are linked laterally by proteins of the**
- (a) Z-line (b) M-line  
(c) H-band (d) A-band
- 117. Which of the following acts as an ATPase during the contraction cycle of muscle**
- (a) Actin molecules  
(b) Troponin molecules  
(c) Tropomyosin molecules  
(d) The head portion of the myosin molecule
- 118. During the Cori cycle, in the liver**
- (a) Glucose is released from glycogen  
(b) Lactic acid is produced from glucose  
(c) Glucose is produced from lactic acid  
(d) Lactic acid is produced from pyruvic acid
- 119. The following is a list of the events that occur during a muscle contraction**
1. Myosin cross-bridges bind to the actin
  2. The free myosin head splits ATP
  3. Calcium ion is released from the sarcoplasmic reticulum
  4. The myosin head pivots toward the center of the sarcomere
  5. Calcium ion binds to troponin
  6. The myosin head binds an ATP molecule and detaches from the actin
- The CORRECT sequence of these events is**
- (a) 1, 3, 5, 4, 6, 2 (b) 5, 1, 4, 6, 2, 3  
(c) 3, 5, 1, 2, 4, 6 (d) 3, 5, 1, 4, 6, 2
- 120. The role of calcium ions in muscle contraction is to**
- (a) Act as a third messenger  
(b) Re-establish glycogen stores  
(c) Bind to regulatory sites on troponin, changing the configuration  
(d) Initiate the conversion of carbon dioxide to oxygen for storage
- 121. The mechanism of contraction in smooth muscle is different from skeletal muscle in that**
- (a) Actin and myosin interact by the sliding filament mechanism  
(b) The trigger for contraction is a rise in intracellular calcium  
(c) The site of calcium regulation differs  
(d) ATP energizes the sliding process
- 122. Muscle tissue has all of the following properties EXCEPT**
- (a) Secretion (b) Contractility  
(c) Extensibility (d) Excitability
- 123. The \_\_\_ nervous system controls the skeletal muscles**
- (a) Sympathetic (b) Parasympathetic  
(c) Afferent (d) Somatic
- 124. Which of the following are a type of glial cell found in the peripheral nervous system**
- (a) Astrocytes (b) Satellite cells  
(c) Oligodendrocytes (d) Microglia
- 125. The largest and most numerous of the glial cells in the central nervous system are the**
- (a) Astrocytes (b) Satellite cells  
(c) Oligodendrocytes (d) Microglia
- 126. The tissue responsible for elasticity and tensile strength is**
- (a) Adipose tissue (b) Areolar tissue  
(c) Fibrous tissue (d) Epithelium
- 127. Bipolar neurons are commonly**
- (a) Motor neurons  
(b) Called neuroglial cells  
(c) Found in ganglia  
(d) Found in the retina of the eye
- 128. Which of the following is NOT a structural feature of a neuron**
- (a) Synaptic cleft (b) Nissl bodies  
(c) Dendrites (d) Axon
- 129. The point at which an impulse from one nerve cell is communicated to another nerve cell is the**
- (a) Cell body (b) Synapse  
(c) Receptor (d) Effector
- 130. Nuclei of cranial nerves V, VI, and VII are found in the**
- (a) Midbrain (b) Medulla  
(c) Pons (d) Cerebrum
- 131. The cerebrospinal fluid**
- (a) Is secreted by the arachnoid villi  
(b) Enters the four ventricles after filling and circulating through the subarachnoid space  
(c) Is secreted mostly by the neuroglia cells lining the brain ventricles  
(d) Is formed mostly by the choroid plexuses and modified by ependymal cells

# BIOTECHNOLOGY

1. **Okazaki fragment is formed during** [NIPER JEE-2023]
  - (a) Replication
  - (b) Transcription
  - (c) Translation
  - (d) None of these
2. **Which vaccine is produced by Recombinant DNA technology** [NIPER JEE-2023]
  - (a) Tetanus vaccine
  - (b) Poliomyelitis vaccine
  - (c) Hepatitis B vaccine
  - (d) Toxoids vaccine
3. **Dolly a transgenic animal is a** [NIPER JEE-2023]
  - (a) Sheep
  - (b) Dog
  - (c) Pig
  - (d) Rabbit
4. **Biopiracy means** [NIPER JEE-2023]
  - (a) Genetic code of plants or animals for commercial use
  - (b) Genetic code for biotechnology
  - (c) Genetic code used in replication
  - (d) Gene coding
5. **The building blocks of DNA molecule** [NIPER JEE-2003]
  - (a) Sugar
  - (b) Phosphate
  - (c) Both (a) and (b)
  - (d) Nucleotide
6. **Choose the Denaturation Temperature of DNA** [NIPER JEE-2015]
  - (a) 30°C
  - (b) 100°C
  - (c) 95°C
  - (d) 110°C
7. **DNA folding is** [NIPER JEE-2007]
  - (a) Folding phenomena
  - (b) Reversing phenomena
  - (c) Catalytic phenomena
  - (d) All of these
8. **Gene transcription occurs in** [NIPER JEE-2008]
  - (a) ER
  - (b) Nucleus
  - (c) Lysosome
  - (d) Golgi Body
9. **Thymidine kinase** [NIPER JEE-2019]
  - (a) Have key function is synthesis of DNA
  - (b) Present in mammalian cell and in virus
  - (c) Both (a) and (b)
  - (d) It provides non-selectivity for anti-viral drugs
10. **Which enzyme are used to cut DNA stand internally** [NIPER JEE-2019]
  - (a) Helicase
  - (b) DNA ligase
  - (c) Gyrase
  - (d) Endonuclease
11. **Type of restriction endonuclease used in biotechnology** [NIPER JEE-2019]
  - (a) EcoRI
  - (b) BamHI
  - (c) Hind III
  - (d) All of these
12. **Restricted endonuclease is found in** [NIPER JEE-2019]
  - (a) Fungi
  - (b) Bacteria
  - (c) Virus
  - (d) Protozoa
13. **Which of the following is involve in the epigenetic modification of DNA** [NIPER JEE-2020]
  - (a) Histone
  - (b) DNA polymerase
  - (c) Taq polymerase
  - (d) All of these
14. **Which enzyme is used for joining DNA strand** [NIPER JEE-2008]
  - (a) Ligase
  - (b) Telomerase
  - (c) Gyrase
  - (d) All Helicase
15. **Which of the following is the function of Reverse transcriptase enzyme** [NIPER JEE-2005, 2009]
  - (a) Converts DNA to RNA
  - (b) Converts RNA to DNA
  - (c) Converts RNA to protein
  - (d) Converts DNA to protein
16. **Restriction endonuclease is an enzyme which cut** [NIPER JEE-2007]
  - (a) DNA
  - (b) RNA
  - (c) Both DNA and RNA
  - (d) Only enzyme
17. **Which of the following considered as RNA dependent DNA polymerase** [NIPER JEE-2022]
  - (a) DNA gyrase
  - (b) Helicase
  - (c) Restriction endonuclease
  - (d) Reverse transcriptase
18. **Topoisomerase enzyme is involved in** [NIPER JEE-2003]
  - (a) Repairing of DNA
  - (b) Overwinding or underwinding of DNA
  - (c) Repairing of irregularities or breaks in the backbone of double-stranded DNA molecules
  - (d) Cutting of DNA molecule at the specific site

22. An aldotriose can be converted into aldotetroses by  
 (a) Ruffs degradation method  
 (b) Wohl's method  
 (c) Kiliani-Fischer synthesis  
 (d) Hoffmann degradation method
23. Which of the following pairs are  $C_4$  epimers  
 (a) D-glucose and D-galactose  
 (b) D-glucose and D-fructose  
 (c) D-glucose and D-mannose  
 (d) D-glucose and D-xylulose
24. Glucose upon treatment with nitric acid yields  
 (a) Gluconic acid (b) Glucaric acid  
 (c) Glucitol (d) Heptanoic acid
25. Invert sugar is  
 (a) Lactose  
 (b) Sucrolose  
 (c) Hydrolytic products of sucrose  
 (d) Fructose
26. A polysaccharide which is often called animal starch is  
 (a) Glycogen (b) Starch  
 (c) Inulin (d) Dextrin
27. Amylose is a constituent of  
 (a) Starch (b) Cellulose  
 (c) Glycogen (d) None of these
28. The conversion of Fructose-1, 6-biphosphate to Glyceraldehyde-3-phosphate is catalysed by  
 (a) Phosphoglycerate kinase  
 (b) Enolase  
 (c) Aldolase  
 (d) Triose phosphate isomerases
29. Which of the following carbohydrate molecule plays role in carbohydrate metabolism a central  
 (a) Galactose (b) Mannose  
 (c) Glucose (d) Fructose
30. Molisch reagent is chemically  
 (a)  $\alpha$ -naphthol in chloroform  
 (b)  $\alpha$ -naphthol in alcohol  
 (c)  $\beta$ -naphthol in chloroform  
 (d)  $\beta$ -naphthol in alcohol
31. Seliwanoff's gives positive result for  
 (a) Glucose (b) Galactose  
 (c) Sucrose (d) Fructose
32. Following are Homopolysaccharides except  
 (a) Starch (b) Cellulose  
 (c) Dextrin (d) Heparin
33. Reducing sugar are identified by  
 (a) Benedict's test + Barfoed's test  
 (b) Fehling's test + Benedict's tes  
 (c) Fehling's test + Barfoed's test  
 (d) All of these
34. Glucose 6 Phosphate requires \_\_\_\_\_ metal iron for activity  
 (a)  $Cu^{2+}$  (b)  $Mg^{2+}$  (c)  $Mn^{2+}$  (d)  $Fe^{2+}$
35. Which of the following is false about HMP shunt  
 (a) No ATP formation  
 (b) Formation of NADPH  
 (c) Synthesis of ribose - 5 - phosphate  
 (d) Non-oxidative phase of HMP pathway is irreversible

## Protein And Amino Acids

36. Acetylation of histone involved which amino acid [NIPER JEE-2024]  
 (a) Lysine (b) Alanine  
 (c) Cysteine (d) Methionine
37. Amino acid contains [NIPER JEE-2023]  
 (a)  $\alpha$  - D amino acid (b)  $\alpha$  - L amino acid  
 (c)  $\alpha$  - R amino acid (d)  $\alpha$  - S amino acid
38. Which of the following is Sulphur containing amino acid [NIPER JEE-2023]  
 (a) Glycine (b) Alanine  
 (c) Ninhydrin (d) Methionine
39. Troponin is [NIPER JEE-2008]  
 (a) Relaxant protein  
 (b) Found in large quantity in muscles  
 (c) Their level decreases in case of myocardial infarction  
 (d) Contractile protein
40. In secondary protein the a structure is stabilized by [NIPER JEE-2009]  
 (a) H-bond (b) Vander walls bond  
 (c) Sigma bond (d)  $\pi$ -bond
41. In proteins the  $\alpha$ -helix and  $\beta$ -pleated sheet are examples of [NIPER JEE-2019]  
 (a) Primary structure (b) Secondary structure  
 (c) Tertiary structure (d) Quaternary structure

128. Choose the opposite base sequence for triplet

ACG [NIPER JEE-2008]

- (a) GUG (b) TGC  
(c) GCA (d) UAG

129. Golden rice is rich in [NIPER JEE-2018]

- (a) Vitamin A (b) Vitamin B  
(c) Vitamin D (d) Vitamin B<sub>12</sub>

### MCQs FOR PRACTICE

130. Nucleosides are the combinations of

- (a) Nitrogenous base + pentose + phosphate  
(b) Non-nitrogenous base + Pentose  
(c) Nitrogenous base + Phosphate  
(d) Nitrogenous base + Pentose

131. Cytosine is chemically

- (a) 2,4-dioxy pyrimidine  
(b) 2,4-dioxy-5-methyl pyrimidine  
(c) 2-oxy-4aminopyrimidine  
(d) 4-oxy-2-methyl pyrimidine

132. During protein synthesis the amino acid sequence is specified by

- (a) Ribosomal RNA (b) Transfer RNA  
(c) Messenger RNA (d) Soluble RNA

133. The nitrogenous base absent in RNA is

- (a) Uracil (b) Cytosine  
(c) Thymine (d) Guanine

134. Which of the following amino acids is required for both purine and pyrimidine synthesis

- (a) Glycine (b) Aspartate  
(c) Alanine (d) Glutamate

135. All the following statements are true with regard to Watson-Crick model of DNA, EXCEPT

- (a) Double stranded helix  
(b) DNA strands running in opposite directions  
(c) Adenine bonds with thymine  
(d) Guanine bonds with uracil



136. Kinase comes under [NIPER JEE-2023]

- (a) Oxidation (b) Hydrolysis  
(c) Isomerase (d) Transferase

137. Efficiency of two enzymes is compared by their

[NIPER JEE-2017]

- (a)  $K_m$  value  
(b) Optimum pH and temp  
(c) Substrate concentration  
(d) Inhibitor

138. Similarity between ribozyme and enzyme [NIPER JEE-2018]

- (a) Both are proteins (b) Both act as a catalyst  
(c) Both are bases (d) None of these

139. Which of the following is a co-factor [NIPER 2015]

- (a)  $\text{Cu}^{2+}$  (b) FMN  
(c) NADP (d) NAD

140. Alpha demethylase enzyme is present in [NIPER JEE-2017]

- (a) UGC (b) Adenylase  
(c) Kinase (d) CYP enzyme

141. Enzyme lysozyme present [NIPER JEE-2018]

- (a) Tear (b) Saliva  
(c) Gastric Juice (d) Both (a) and (b)

142. Enzyme lipase is active at which pH [NIPER JEE-2018]

- (a) 1.5 (b) 2.5 (c) 3 (d) 8

143. Pantothenic acid is involved in synthesis of which coenzyme [NIPER JEE-2019]

- (a) Coenzyme A (b) Coenzyme Q  
(c) Coenzyme F (d) Cytochrome C

144. An enzyme hydrolysed a substrate at  $[S]=0.02$  mmol/L with a  $K_m$  value of around 0.08 mmol/L. The initial velocity observed was  $3 \times 10^{-3}$  mmol/L.min<sup>-1</sup>. Calculate the maximum velocity of the enzymatic reaction [NIPER JEE-2020]

- (a)  $1.5 \times 10^{-3}$  (b)  $1.5 \times 10^{-2}$   
(c)  $3 \times 10^{-3}$  (d)  $1.5 \times 10^{-4}$

145. The plot of  $1/V$  Versus  $1/(s)$  where  $V$  is rate of enzymatic reaction and  $(s)$  is substrate concentration is known as [NIPER JEE-2020]

- (a) Michaelis Menten plot  
(b) Lineweaver Burk plot  
(c) Hanes Woolf plot  
(d) Eadie Hofstee plot

146. When the velocity of enzyme activity is plotted against substrate concentrations, which of the following is obtained [NIPER JEE-2020]

- (a) Parabola  
(b) Hyperbolic curve  
(c) Straight line with positive slope  
(d) Straight line with negative slope

# MICROBIOLOGY

1. **Which phase of bacterial growth inhibits the growth of bacteria** [NIPER JEE-2024]
  - (a) Lag phase
  - (b) Log phase
  - (c) Stationary phase
  - (d) Decline phase
2. **What type of immune cells primarily produce IFN- $\gamma$**  [NIPER JEE-2024]
  - (a) Eosinophils and basophils
  - (b) T cells and natural killer (NK) cells
  - (c) B cells and plasma cells
  - (d) Neutrophils and macrophages
3. **Salmonella typhi spread via** [NIPER JEE-2024]
  - (a) Water only
  - (b) Food only
  - (c) Both (a) and (b)
  - (d) None of these
4. **Which sterilization method act by inactivation** [NIPER JEE-2023]
  - (a) Ionization sterilization
  - (b) Heat sterilization
  - (c) Gaseous sterilization
  - (d) Steam sterilization
5. **Arrange in order about gram staining** [NIPER JEE-2023]
  - (a) Crystal violet, Iodine solution, Alcohol, Safranin
  - (b) Iodine solution, Crystal violet, Safranin, Alcohol
  - (c) Alcohol, Crystal violet, Iodine solution, Safranin
  - (d) Alcohol, Iodine solution, Safranin, Crystal violet
6. **HEPA filter maintenance (Smoke test)** [NIPER JEE-2023]
  - (a) Daily
  - (b) Weekly
  - (c) 3 months
  - (d) 12 months
7. **Rh in blood is a** [NIPER JEE-2023]
  - (a) Antigen
  - (b) Antibody
  - (c) Protein
  - (d) None of these
8. **Correct definition of antibiotic** [NIPER JEE-2023]
  - (a) Obtain from any species and kill microbes
  - (b) Obtain only from microbes to kill other microbes
  - (c) Only suppress the growth of microbes
  - (d) None of these
9. **Probiotic is a** [NIPER JEE-2023]
  - (a) Live microorganism that are intended to have health benefits
  - (b) Live microorganism that are intended to anticancer activity
  - (c) Live microorganism that are intended to Fuel ability
  - (d) Live microorganism that are intended to reduce toxicity
10. **Non stained living cells are seen under which microscope** [NIPER JEE-2010]
  - (a) Compound
  - (b) Phase contrast
  - (c) Electron
  - (d) None of these
11. **Resolution of microscope proportional to** [NIPER JEE-2018]
  - (a) Increase with wavelength
  - (b) Increase with frequency
  - (c) Not related with wavelength
  - (d) Decrease when increase wavelength
12. **Rideal walker coefficient of grade 2 disinfectant is** [NIPER JEE-2008]
  - (a) 5
  - (b) 10
  - (c) 15
  - (d) 20
13. **Who proposed the famous "Germ Theory"** [NIPER JEE-2019]
  - (a) Edward Jenner
  - (b) Boyer and Cohen
  - (c) Ehrlich
  - (d) Louis Pasteur
14. **The chief constituent present in bacteria cell wall is** [NIPER JEE-2006, 2011]
  - (a) Cellulose
  - (b) Disaccharide
  - (c) Protein
  - (d) Peptidoglycan
15. **Color of Cyanobacteria is** [NIPER JEE-2008]
  - (a) Reddish brown
  - (b) Dark Green
  - (c) Brick red
  - (d) Bluish-Green
16. **Motile bacteria is** [NIPER JEE-2010]
  - (a) Shigella
  - (b) *E. coli*
  - (c) Lactobacillus
  - (d) *Klebsiella pneumonia*

**140. CD4+ T cells are activated in association with**

- (a) MHC class I (b) MHC class II  
(c) MHC class III (d) MHC class IV

**141. Which of following combination is characteristic of type I hypersensitivity**

- (a) Mast cells, IgE and histamine  
(b) Mast cells, IgG and histamine  
(c) Neutrophils, IgE and histamine  
(d) None of these

**142. The predominant hypersensitivity reaction involving IgE is**

- (a) Type I (b) Type II  
(c) Type III (d) Type IV

**143. The technique used to avoid all microorganisms is accomplished by**

- (a) Sterilization  
(b) Disinfection  
(c) Surgical sterilization  
(d) Disinfection Sterilization

**144. Temperature required for pasteurization is**

- (a) Above 100°C (b) Below 100°C  
(c) At 100°C (d) Above 150°C

**145. Discontinuous heating is called**

- (a) Pasteurization (b) Sterilization  
(c) Fermentation (d) Tyndallization

**146. Fragile heat-sensitive equipments are sterilized by which method**

- (a) Gama radiation

- (b) Ethylene oxide

- (c) Chemical sterilization

- (d) None of these

**147. In moist heat sterilization, bacteria are killed by**

- (a) Coagulation of protoplasm  
(b) Oxidation  
(c) Lysis  
(d) Alkylation

**148. At the temperature 160°C for one-hour, complete sterilization occurs in**

- (a) Autoclave (b) Hot air oven  
(c) Laminar flow (d) Incubator

**149. What is D-value**

- (a) Time required to decrease the microbial population by 90%  
(b) Time required to decrease the microbial population by 60%  
(c) Time required to decrease the microbial population by 50%  
(d) Time required to decrease the microbial population by 100%

**150. Phenol co-efficient indicates**

- (a) Efficiency of a disinfectant  
(b) Dilution of a disinfectant  
(c) Purity of a disinfectant  
(d) Quantity of a disinfectant

**PHARMACEUTICAL MANAGEMENT**

**1. QbD stands for [NIPER JEE-2023]**

- (a) Quality by Design  
(b) Quantity by Design  
(c) Not Defined  
(d) Qualitative by Design

**2. To which type of manager does a middle manager typically report [NIPER JEE-2023]**

- (a) Manager (b) Employee  
(c) First level (d) Second level

**3. The price that equates market supply and market demand is called [NIPER JEE-2022]**

- (a) Market restoring price

- (b) Market depreciating price

- (c) Market elastic price

- (d) Market clearing price

**4. The art of planning, organizing, staffing, motivating and controlling is called [NIPER JEE-2022]**

- (a) Manufacturing (b) Advertising skills  
(c) Management (d) Marketing

**5. Traffic flow analysis is a technique associated with [NIPER JEE-2022]**

- (a) Manufacturing units  
(b) Pharmacy stores  
(c) Marketing  
(d) Drug control departments

**BIOCHEMISTRY**

1 - d	2 - b	3 - c	4 - d	5 - c	6 - c	7 - a	8 - b	9 - b	10 - a
11 - b	12 - d	13 - c	14 - b	15 - c	16 - b	17 - a	18 - c	19 - b	20 - d
21 - d	22 - c	23 - a	24 - b	25 - c	26 - a	27 - a	28 - c	29 - c	30 - b
31 - b	32 - d	33 - b	34 - b	35 - d	36 - a	37 - b	38 - d	39 - d	40 - a
41 - b	42 - c	43 - d	44 - c	45 - a	46 - b	47 - d	48 - d	49 - d	50 - c
51 - c	52 - a	53 - d	54 - c	55 - d	56 - d	57 - d	58 - d	59 - c	60 - d
61 - b	62 - c	63 - a	64 - a	65 - c	66 - b	67 - a	68 - b	69 - a	70 - a
71 - a	72 - b	73 - b	74 - d	75 - c	76 - c	77 - c	78 - c	79 - b	80 - c
81 - b	82 - a	83 - c	84 - c	85 - a	86 - b	87 - c	88 - c	89 - d	90 - b
91 - d	92 - a	93 - a	94 - c	95 - a	96 - a	97 - b	98 - a	99 - d	100 - c
101 - a	102 - d	103 - a	104 - c	105 - b	106 - a	107 - d	108 - b	109 - c	110 - a
111 - b	112 - d	113 - d	114 - a	115 - c	116 - a	117 - b	118 - d	119 - d	120 - d
121 - d	122 - b	123 - c	124 - c	125 - b	126 - a	127 - d	128 - b	129 - a	130 - d
131 - c	132 - c	133 - a	134 - b	135 - d	136 - d	137 - a	138 - b	139 - a	140 - b
141 - d	142 - d	143 - a	144 - b	145 - a	146 - b	147 - a	148 - b	149 - b	150 - b
151 - b	152 - b	153 - d	154 - a	155 - c	156 - b	157 - b	158 - c	159 - b	160 - c
161 - a	162 - c	163 - d	164 - d	165 - b	166 - b	167 - a	168 - c	169 - b	170 - c
171 - b	172 - a	173 - a	174 - a	175 - d	176 - a	177 - c	178 - a	179 - c	180 - c
181 - c	182 - a	183 - a	184 - a	185 - d	186 - d	187 - d	188 - a	189 - b	190 - d
191 - b	192 - a	193 - b	194 - d	195 - a	196 - d	197 - c	198 - a	199 - b	200 - b

**MICROBIOLOGY**

1 - c	2 - b	3 - c	4 - d	5 - a	6 - d	7 - a	8 - b	9 - a	10 - c
11 - b	12 - b	13 - d	14 - d	15 - d	16 - b	17 - d	18 - b	19 - a	20 - d
21 - d	22 - d	23 - c	24 - b	25 - a	26 - c	27 - c	28 - a	29 - c	30 - a
31 - b	32 - d	33 - c	34 - d	35 - c	36 - d	37 - b	38 - b	39 - c	40 - a
41 - a	42 - a	43 - c	44 - d	45 - d	46 - b	47 - d	48 - b	49 - a	50 - a
51 - d	52 - c	53 - d	54 - b	55 - c	56 - c	57 - d	58 - a	59 - b	60 - c
61 - a	62 - a	63 - d	64 - b	65 - a	66 - b	67 - d	68 - d	69 - b	70 - d
71 - c	72 - c	73 - b	74 - b	75 - b	76 - b	77 - b	78 - a	79 - b	80 - d
81 - b	82 - a	83 - c	84 - c	85 - d	86 - a	87 - b	88 - c	89 - d	90 - c
91 - c	92 - a	93 - c	94 - b	95 - b	96 - a	97 - a	98 - a	99 - c	100 - c
101 - c	102 - b	103 - c	104 - a	105 - c	106 - a	107 - b	108 - c	109 - c	110 - d
111 - a	112 - d	113 - b	114 - b	115 - a	116 - c	117 - d	118 - b	119 - b	120 - b
121 - b	122 - d	123 - b	124 - a	125 - b	126 - a	127 - d	128 - b	129 - d	130 - d
131 - a	132 - d	133 - b	134 - b	135 - b	136 - a	137 - b	138 - b	139 - c	140 - b
141 - a	142 - a	143 - a	144 - b	145 - d	146 - b	147 - a	148 - b	149 - a	150 - a

**PHARMACEUTICAL MANAGEMENT**

1 - a	2 - a	3 - d	4 - c	5 - c	6 - a	7 - d	8 - c	9 - c	10 - a
11 - d	12 - a	13 - d	14 - b	15 - c	16 - a	17 - b	18 - b	19 - d	20 - b
21 - a	22 - b	23 - b	24 - c	25 - d	26 - a	27 - a	28 - d	29 - c	30 - b
31 - a	32 - c	33 - c	34 - c	35 - c	36 - c	37 - a	38 - d	39 - d	40 - b
41 - b	42 - d	43 - d	44 - b	45 - d	46 - d	47 - c	48 - c	49 - b	50 - a
51 - b	52 - b	53 - b	54 - d	55 - b	56 - c	57 - b	58 - b	59 - c	60 - b
61 - b	62 - c	63 - c	64 - b	65 - d	66 - d	67 - c	68 - c	69 - a	70 - c
71 - c	72 - b	73 - b	74 - b	75 - d	76 - b	77 - c	78 - b	79 - b	80 - a
81 - b	82 - b	83 - b	84 - b	85 - c	86 - b	87 - a	88 - b	89 - b	90 - a
91 - a	92 - a	93 - a	94 - a	95 - a	96 - b	97 - b	98 - b	99 - b	100 - a

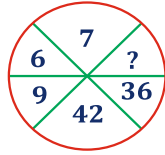


# NON-PHARMA

## REASONING AND APTITUDE

- Complete the series** [NIPER JEE-2024]  
**Earth : planet :: moon : ?**  
(a) Planet (b) Start  
(c) Asteroids (d) Satellite
- Complete the number series** [NIPER JEE-2024]  
**4, 16, 36, 64, \_\_\_\_\_, 144**  
(a) 86 (b) 100  
(c) 112 (d) 132
- Complete the series** [NIPER JEE-2024]  
**Horse : Stable :: Bee : .....**  
(a) Pollen (b) Flower  
(c) Honeycomb (d) Nectar
- One circle has a radius of  $r$ , and another circle has a radius of  $2r$ . The area of the larger circle is how many times the area of the smaller circle** [NIPER JEE-2024]  
(a) 1.5 (b) 2  
(c) 3 (d) 4
- If 200% of 40% of  $x$  is equal to 40% of  $y$ , then  $x$  is what percent of  $y$**  [NIPER JEE-2024]  
(a) 10% (b) 50%  
(c) 30% (d) 80%
- If  $\log(a/b) + \log(b/a) = \log(a+b)$ , Then  $(a+b)$  is equal to** [NIPER JEE-2024]  
(a) 1 (b) 2  
(c) 3 (d) 4
- Father says to his son "I was the same as of you now, when you was born" now father's age is 38 years so what would be the son's age before 5 years from present** [NIPER JEE-2024]  
(a) 19 (b) 14  
(c) 15 (d) 16
- If a plane covers certain distance at the speed of 240 mph in 5 hours then how much speed is needed to cover same distance in 3 hours** [NIPER JEE-2024]  
(a) 260 mph (b) 300 mph  
(c) 400 mph (d) 500 mph
- Select odd one out** [NIPER JEE-2023]  
(a) 25 (b) 121  
(c) 171 (d) 242
- Odd one out** [NIPER JEE-2023]  
(a) 10 (b) 50  
(c) 211 (d) 290
- Average sum of 05 odd no. = 61. Find the greatest no of that 05** [NIPER JEE-2023]  
(a) 57 (b) 59  
(c) 61 (d) 63
- The HCF of two numbers is 6 and their LCM is 72. If one number is 18, what is the other number** [NIPER JEE-2023]  
(a) 18 (b) 24  
(c) 36 (d) 48
- If cost price is 800 and shopkeeper sold at 20% loss, find the selling price** [NIPER JEE-2023]  
(a) 500 (b) 420  
(c) 640 (d) 720
- What is Mean** [NIPER JEE-2023]  
(a) Adding the numbers and dividing the sum by the number of numbers in the list  
(b) Middle value in a list ordered from smallest to largest  
(c) Most frequently occurring value on the list  
(d) Adding the numbers and equals the sum by the number

72. Select the missing number from the given responses



- (a) 54 (b) 34  
(c) 78 (d) 24

73. Complete the series

Architect : Building :: Sculptor : ?

- (a) Museum (b) Stone  
(c) Chisel (d) Statue

74. In the following question of logical sequence of words, find the correct answer

1. Birth 2. Death  
3. Funeral 4. Marriage  
5. Education

- (a) 1, 3, 4, 5, 2 (b) 1, 5, 4, 2, 3  
(c) 2, 3, 4, 5, 1 (d) 4, 5, 3, 1, 2

75. In the following question of logical sequence of words, find the correct answer

1. Consultation 2. Illness  
3. Doctor 4. Treatment  
5. Recovery

- (a) 2, 3, 1, 4, 5 (b) 2, 3, 4, 1, 5  
(c) 4, 3, 1, 2, 5 (d) 5, 1, 4, 3, 2

76. In the following question of logical sequence of words, find the correct answer

1. Elephant 2. Cat  
3. Mosquito 4. Tiger  
5. Whale

- (a) 5, 3, 1, 2, 4 (b) 1, 3, 5, 4, 2  
(c) 3, 2, 4, 1, 5 (d) 2, 5, 1, 4, 3

77. Complete the series

WFB, TGD, QHG, ?

- (a) NIJ (b) NIK  
(c) NJK (d) OIK

78. If in a certain code ROPE is coded as 6821, CHAIR is coded as 73456 what will be the code for CRAPE?

- (a) 73456 (b) 76421  
(c) 77246 (d) 77123

79. If in a certain language CHAMPION is coded as HCMAIPNO, how can NEGATIVE be coded in that code

- (a) ENAGITEV (b) NEAGVEIT  
(c) MGAETVIE (d) EGAITEVN

80. The number question below is to be codified in the following code.

Digit: 5 3 7 1 4 9 6 2 8

Letter: C J O X N Q T Z F

What will be the code for "163542"?

- (a) XTJCNZ (b) TXJCNZ  
(c) XTJ CZN (d) XTCJNZ

81. If PUNCTUAL can be written as 47819765, how can LUNA be written in that code?

- (a) 7586 (b) 5678  
(c) 5786 (d) 5867

82. In a code language 256 means 'you are good', 637 means 'we are bad', 358 means 'good and bad'. Find the code for 'and'.

- (a) 2 (b) 5  
(c) 8 (d) 3

83. Mohini went to the movies nine days ago. She goes to the movies only Thursday. What day of the week today

- (a) Thursday (b) Saturday  
(c) Sunday (d) Tuesday

84. If 3<sup>rd</sup> December, 1990 is Sunday, what day is 3<sup>rd</sup> January, 1991

- (a) Tuesday (b) Wednesday  
(c) Thursday (d) Friday

85. Priyanka Chopra ranks 17<sup>th</sup> in a class of 49 students. What is her ranks from the last?

- (a) 31 (b) 32  
(c) 33 (d) 37

86. Choose the odd numeral pair/group in each of the following questions:

- (a) 12 : 96 (b) 13 : 117  
(c) 15 : 120 (d) 16 : 128

87. Complete the series

AZ, GT, MN, ?, YB

- (a) JH (b) SH  
(c) SK (d) TS

88. One term in the number series is wrong. Find out the wrong term

121, 143, 165, 186, 209

- (a) 143 (b) 165  
(c) 186 (d) 209

89. Study the questions carefully and choose the right answer. Veer Das ranks 7<sup>th</sup> from the top and 28<sup>th</sup> from the bottom in a class. How many students are there in the class

- (a) 32 (b) 33  
(c) 34 (d) 35

187. If  $x \times y = x + y + \sqrt{xy}$ , the value of  $6 \times 24$  is

- (a) 41 (b) 42  
(c) 43 (d) 44

188. David obtained 76, 65, 82, 67 and 85 marks (out of 100) in English, Mathematics, Physics, Chemistry and Biology. What are his average marks

- (a) 75 (b) 68  
(c) 65 (d) 60

189.  $40\%$  of  $75 + 80\%$  of  $25 = K\%$  of  $250$ . Find the value of  $K$

- (a) 10 (b) 20  
(c) 30 (d) 35

190. If  $5x - 17 = -x + 7$ , then  $x = ?$

- (a) 4 (b) 5  
(c) 7 (d) 9

191. The number 7386038 is divisible by

- (a) 3 (b) 4  
(c) 9 (d) 11

192. Find the number which is 30% more than 240

- (a) 312 (b) 340  
(c) 331 (d) 320

193. The sum of two numbers is 184. If one-third of one exceeds one-seventh of the other by 8, find the smaller number

- (a) 92 (b) 84  
(c) 72 (d) 76

194. Calculate the value of  $A$  when

$$A = \frac{25^{-3}}{5^{-6}} \times \frac{5^2}{0.5^2}$$

- (a)  $10^{-2}$  (b)  $10^{-1}$   
(c) 10 (d)  $10^2$

195. What will be the digit at unit place of the number  $(2013)^{2019}$

- (a) 1 (b) 3  
(c) 9 (d) 7

196. Find the product of the face value and the place value of the digit 3 in the number 834

- (a) 90 (b) 102  
(c) 112 (d) None of these

197. In the mixture of 35 litres, ratio of milk and water is 5 : 2. How much water should be mixed so that this ratio becomes 5 : 3

- (a) 10 Litres (b) 25 Litres  
(c) 5 Litres (d) 12 Litres

198. What percent of total spending is spent on Tennis

- (a)  $12\frac{1}{2}\%$  (b)  $22\frac{1}{2}\%$   
(c) 25% (d) 45%

199. How much percent more is spent on Hockey than that on Golf

- (a) 27% (b) 35%  
(c) 37.5% (d) 75%

200. How much percent less is spent on Football than that on Cricket

- (a)  $22\frac{2}{9}\%$  (b) 27%  
(c)  $33\frac{1}{3}\%$  (d)  $37\frac{1}{7}\%$

## GENERAL KNOWLEDGE

1. Which of the following the longest river in India [NIPER JEE-2024]

- (a) Ganga (b) Godavari River  
(c) Kaveri River (d) Krishna River

2. Bitcoin is developed by [NIPER JEE-2024]

- (a) Udaya Kumar (b) Bob Taylor  
(c) Tim Berners-Lee (d) Satoshi Nakamoto

3. Highest pulse producing state in India is [NIPER JEE-2024]

- (a) Rajasthan (b) Maharashtra  
(c) Orissa (d) Chhattisgarh

4. Petroleum refinery factory is located at [NIPER JEE-2024]

- (a) Jamnagar (b) Delhi  
(c) Kolkata (d) Mumbai



# MODEL PAPER - 1

- Which of the Benzisoquinoline derivatives has analgesic action**
  - Morphine
  - Papaverine
  - Codeine
  - None of these
- Full form of ICH is**
  - International Congress on Harmonization
  - International Conference on Harmonisation
  - International Conference on Health
  - International Control on Health
- ABC analysis based on**
  - Cost of material
  - Money value of consumption
  - Both (a) and (b)
  - Type of material
- Invert sugar among the following sugars is**
  - Sucrose
  - Galactose
  - Fructose
  - Mannose
- Rennet is used in**
  - Bread making
  - Fermentation
  - Cheese making
  - Antibiotics synthesis
- Furosemide acts by inhibiting the following in the renal tubular cell**
  - $\text{Na}^+ \text{K}^+ 2\text{Cl}^-$  cotransporter
  - $\text{Na}^+ \text{Cl}^-$  symporter
  - $\text{Na}^+ \text{H}^+$  antiporter
  - $\text{Na}^+ \text{K}^+$  ATPase
- Phenolphthalein is a \_\_\_\_\_ type of indicator**
  - Acid-base
  - Oxidoreductase
  - Universal
  - Nonaqueous
- The T wave on an ECG represents**
  - Ventricular depolarization
  - Ventricular repolarization
  - Atrial depolarization
  - Atrial repolarization
- Which of the following would be a toxin (poison of biological origin) ICH guide line responsible for the analytical validation**
  - Q2 (R2)
  - Q2 (R1)
  - Q1 (R2)
  - Q1 (R1)
- Which of the following can make difference in optical isomers**
  - Heat
  - Temperature
  - Polarized light
  - Pressure
- Which of the following agents inhibits hepatic metabolism of hypnotics**
  - Flumazenil
  - Cimetidine
  - Phenytoin
  - Theophylline
- Ionic bonds are formed when**
  - Atoms share electrons
  - Electrons are completely transferred from one atom to another
  - A pair of electrons is shared unequally by two atoms
  - Hydrogen forms bonds with negatively charged atoms
- MULL is the term related to sampling technique in which spectroscopy**
  - FT-IR
  - UV
  - NMR
  - Mass
- A nucleotide consists of**
  - A five- carbon sugar and phosphate group
  - A five- carbon sugar and a nitrogenous base
  - A phosphate group and a nitrogenous base
  - A five- carbon sugar, a nitrogenous base, and a phosphate group
- Strongest acid among the following is**
  - $\text{C}_6\text{H}_{12}$  pKa = 52
  - $\text{CH}_3\text{CH}_3$  pKa = 50
  - $\text{CH}_3\text{CH}_2\text{OH}$  pKa = 18
  - $\text{CF}_3\text{CO}_2\text{H}$  pKa = 0

- 181. Who is the current Governor of the Reserve Bank of India (RBI)**  
 (a) Urjit Patel (b) Raghuram Rajan  
 (c) Shaktikanta Das (d) Subbarao
- 182. Inner circumference of a 7 m wide circular race track, is 220 m. Find the radius of outer circle**  
 (a) 44 (b) 42 (c) 40 (d) 30
- 183. If  $\log 2 = 0.2614$ ,  $\log 3 = 0.3521$ ,  $\log 6 = ?$**   
 (a) 0.0920 (b) 0.6135  
 (c) 1.2614 (d) 1.3521
- 184. In a row of boys, Srinath is 7<sup>th</sup> from the left and Venkat is 12<sup>th</sup> from the right. If they interchange their positions, Srinath becomes 22<sup>nd</sup> from the left. How many boys are there in the row**  
 (a) 19 (b) 31 (c) 33 (d) 34
- 185. Fish : Scales :: Bear : ?**  
 (a) Feathers (b) Leaves  
 (c) Fur (d) Skin
- 186. When is the 'World Earth Day' celebrated**  
 (a) 20 April (b) 21 April  
 (c) 22 April (d) 23 April
- 187. Who emerged as the Chairman of IFFCO following the elections in May 2024**  
 (a) Balvir Singh (b) Dileep Sanghani  
 (c) Dr. US Awasthi (d) Jagdeep Singh Nakai
- 188. Which of the following crops is not a rabi crop**  
 (a) Rice (b) Wheat  
 (c) Barley (d) Oats
- 189. Who was the Polio Vaccine's discoverer**  
 (a) Darwin (b) Jonas Salk  
 (c) Louis Pasteur (d) Eli Whitney
- 190. The Lingaraj Temple, that was recently making news, is located in which city of Odisha**  
 (a) Puri (b) Cuttack  
 (c) Bhubaneswar (d) Sambalpur
- 191. In what type of cancer, Tivozanib (Ivozaniib or Ivoebi) primarily designed to treat**  
 (a) Hormone receptor-positive breast cancer  
 (b) Human epidermal growth factor receptor 2 (HER2)-positive breast cancer  
 (c) Triple-negative breast cancer  
 (d) Locally advanced or metastatic breast cancer
- 192. Who became India's first-ever gymnast to win gold medalist at the Asian Championships in Tashkent, Uzbekistan, on 26 May 2024**  
 (a) Mary Kom (b) PV Sindhu  
 (c) Dipa Karmakar (d) Saina Nehwal
- 193. Which organization has approved Yorvipath for treating hypoparathyroidism**  
 (a) European Medicines Agency (EMA)  
 (b) US Food and Drug Administration (FDA)  
 (c) World Health Organization (WHO)  
 (d) Both (a) and (b)
- 194. The next Summer Olympics will be held on \_\_\_\_ 2028**  
 (a) California, United States  
 (b) Paris, France  
 (c) Beijing, China  
 (d) Tokyo Japan
- 195. Which pharmaceutical company acquired Aliada**  
 (a) Pfizer (b) Merck  
 (c) AbbVie (d) Johnson & Johnson
- 196. Which of the following is a notable product category of Sun Pharma, the largest pharma company in India**  
 (a) Vaccines  
 (b) Generic medicines  
 (c) Biologics  
 (d) Over-the-counter (OTC) products
- 197. What was the reason for banning Nimesulide in India**  
 (a) Cardiovascular side effects  
 (b) Liver toxicity  
 (c) Kidney damage  
 (d) Potential risk of liver failure in children
- 198. Safi is an Ayurvedic medicine which claims to be a blood-purifier. It is produced by**  
 (a) Dabur  
 (b) Himalaya  
 (c) Hamdard Laboratories (Waqf)  
 (d) Patanjali
- 199. What does 'Holistic' mean with reference to holistic medicine**  
 (a) Medicine incorporating whole foods  
 (b) Medicine with natural remedies  
 (c) Addressing the whole person  
 (d) Curing with the power of prayer
- 200. First Nuclear device test was done in**  
 (a) Rajasthan (b) Punjab  
 (c) Sikkim (d) Maharashtra



# MODEL PAPER - 4

- The number of adenine bases in a DNA molecule equals the number of thymine bases because**
  - DNA contains equal numbers of all four bases
  - Thymine always follows adenine on each DNA strand
  - DNA is made of alternating adenine and thymine bases
  - Adenine on one strand bonds to thymine on the other strand
- Number of optically active isomers of Tartaric acid is**
  - 2
  - 3
  - 4
  - 5
- Phenytoin is chemically**
  - 5,5-diphenylimidazoline-2,4 dione
  - 4-diphenylimidazoline-2,4-dione
  - 4,4-diphenylimidazoline-3,5-dione
  - 5,5-diphenylpyrazoline-3,5-dione
- The intrinsic white injury factor**
  - Avidin
  - Biotin
  - Isoniazid
  - Lipoic acid
- Bicuculline is**
  - Competitive Antagonist
  - Competitive agonist
  - Inverse agonist
  - None of the above
- World trade organization was established in**
  - 1992
  - 1993
  - 1994
  - 1995
- Hepatotoxic metabolite of paracetamol**
  - NABQI
  - CYP2E1 Inhibitor
  - N- Acetylcysteine
  - None of these
- GABA<sub>B</sub> receptor antagonist is the**
  - Bicuculline
  - Saclofen
  - Both (a) and (b)
  - None of these
- Yeast is used in the formation of**
  - Ammonia
  - Curd
  - Petrol
  - Alcohol
- Reactivity order of carbanions**
  - $3^\circ > 2^\circ > 1^\circ$
  - $2^\circ > 3^\circ > 1^\circ$
  - $1^\circ > 2^\circ > 3^\circ$
  - $1^\circ > 3^\circ > 2^\circ$
- Digitalis is used as**
  - Laxative
  - Hepatoprotective
  - Cardiotonic
  - All of these
- Which of the following is stereoisomerism**
  - Geometrical isomerism
  - Cis -Trans isomerism
  - Optical isomerism
  - All of these
- Pure opioid antagonist is**
  - Nalmefene
  - Naltrexone
  - Naloxone
  - All of these
- Detector used in spectrophotometer**
  - Photo multiplier tube
  - Thermistor
  - Thermocouple
  - None of these
- Carbylamine group is**
  - NC
  - =NH
  - CN
  - NH<sub>2</sub>
- Experimental determination of Osmotic pressure in non-aqueous solution is**
  - Berkeley & Hartley method
  - Morse and Frazer method
  - Beckmann's method
  - Townend's method
- Hapten is the**
  - Drugs
  - Metabolite
  - Foreign material to body
  - All of these
- Alkylating agent act through the formation of the free radical**
  - Procarbazine
  - Lomustine
  - Dacarbazine
  - None of these
- Reaction "Aldol -condensation" is mediated by**
  - Carbo cation
  - Carbanion
  - Carbine
  - Free radical



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191 - d	192 - a	193 - b	194 - b	195 - b	196 - b	197 - d	198 - b	199 - c	200 - b