

II B. Pharmacy I Semester Supplementary Examinations, Oct/Nov - 2020

PHYSICAL PHARMACEUTICS-I

Time: 3 hours

Max. Marks: 75

- Note: 1. Question paper consists of three parts (**Part-I, Part-II & Part-III**)
 2. Answer ALL (Multiple Choice) Questions from **Part-I**
 3. Answer any **TWO** Questions from **Part-II**
 4. Answer any **SEVEN** Questions from **Part-III**

PART - I

1. (i) Slightly soluble indicates the solubility of one part in (1M)
 (a) 100 to 1000 parts of solvent (b) More than 10,000 parts of solvent
 (c) 1000 to 10,000 parts of solvent (d) 10 to 30 parts of solvent
- (ii) The dielectric constant of water is (1M)
 (a) 80 (b) 50 (c) 30 (d) 20
- (iii) Complete miscibility is not existing in between (1M)
 (a) Water and alcohol (b) Benzene and CCL₄
 (c) Glycerol and alcohol (d) Benzene and water
- (iv) Raoult's law is expressed as: (1M)
 (a) $P_i = P_i^0 x_i$ (b) $P_i = P_i^0 x_i$ (c) $P_i = P_i^0 + x_i$ (d) $P_i = \frac{P_i^0}{x_i}$
- (v) All polymorphs of a drug have (1M)
 (a) Same solubilities (b) Same melting points
 (c) Different Solubilities (d) None of above
- (vi) Refractive index 'n' is expressed as (1M)
 (a) $\frac{\sin i}{\sin r}$ (b) $\sin i + \sin r$ (c) $\sin i \times \sin r$ (d) None of above
- (vii) Permanent dipole is due to (1M)
 (a) Positively and negatively charged regions in a molecule
 (b) Non existence of charged regions (c) ionization of a molecule
 (d) None of above
- (viii) Dielectric constant is not related to (1M)
 (a) Ratio of capacitances of a material and that of a references
 (b) Oscillametry (c) DSC (d) Polarimetry
- (xi) No interface is passible in between (1M)
 (a) Gas-Liquid (b) Liquid-Liquid (c) Gas-Gas (d) Liquid-Slid
- (x) Surface tension is measured by (1M)
 (a) Capillary rise method (b) Du noiiy ring method
 (c) Stalagmo meter (d) All of above
- (xi) Spreading of oleic acid on water occurs on a film due to (1M)
 (a) Forces of adhesion and cohesion are same
 (b) Force of adhesion is greater than cohesion
 (c) Force of adhesion is less than cohesion
 (d) All of above
- (xii) Solubility agents have (1M)
 (a) >16 HLB value (b) <3 HLB value (c) 3-8 HLB value (d) None of above

- (xiii) HLB value of polyhydric alcohol fatty acid ester can be (1M)
(a) 20-S/A (b) 20 (1-S/A) (c) 20 (1-A/S) (d) None of above
- (xiv) Clathrate is a kind of (1M)
(a) Inclusion complex (b) Organic molecular complex
(c) Metal ion complex (d) None of above
- (xv) Major protein involved in protein binding of a drug (1M)
(a) α_1 -acid glycoprotein (b) Albumin (c) Immunoglobulin (d) fibrinogen
- (xvi) Drug-protein binding can be studied with help of (1M)
(a) Ultrafiltration (b) Dynamic dialysis (c) Equilibrium (d) All of above
- (xvii) Select the cyclodextrin with the smallest cavity (1M)
(a) β -CD (b) γ -CD (c) α -CD (d) None of above
- (xviii) Buffer capacity is (1M)
(a) The magnitude of the resistance of a buffer to pH changes
(b) The magnitude of the resistance of an acid to pH changes
(c) The magnitude of the resistance of a base to pH changes
(d) None of above
- (xix) Pharmaceutical buffer is prepared from (1M)
(a) Weak acid and a salt of strong base
(b) Weak acid and a salt of weak base
(c) Weak base and a salt of weak acid
(d) Strong acid and strong base
- (xx) Select the non indicator for pH determination (1M)
(a) Phenolphthalein (b) Methyl red (c) Methyl orange (d) Iodine

PART -II

2. Define polymorphism; give examples of drugs that exhibit polymorphism. Write about the properties and detection of polymorphs of a drug. (10M)
3. Write briefly about pH, pH indicators, buffer and buffer equation. Describe the preparation of any one buffer. (10M)
4. Write a detailed note on Protein binding of drug and its determination and biological effects of protein binding. (10M)

PART -III

5. Write about the solubility of gases in liquids and Henry's law. (5M)
6. Describe the calculation of RHLB (required HLB) of oil for making O/W emulsion by taking suitable example. (5M)
7. Write about refractive index and its determination. (5M)
8. Write a note on dipole moment and its determination. (5M)
9. Explain 'inclusion complex'. Give three examples and describe the importance of each of them. (5M)

Code No: BP302T

PCI

SET - 1

10. Explain 'Complexation'. Classify different complexes with examples. Add notes on the analysis by distribution method. (5M)
11. Define 'diffusion'. Write about the Fick's laws of diffusion and importance in pharmacy. (5M)
12. Write about the pH determination by electrometric method. Add notes on applications of buffers. (5M)
13. Write a note on buffered isotonic solutions and tonicity calculation by Lisa volume. (5M)