

Total No. of printed pages = 4

BINA CHOWDHURY CENTRAL LIBRARY
(GIMT & GIPS)
Azara, Hatkhowapara
Guwahati - 781017

9/2/2023

BP 302 T

Roll No. of candidate

--	--	--	--	--	--	--	--	--	--

2023

B.Pharm. 3rd Semester End-Term Examination

PHYSICAL PHARMACEUTICS - I (THEORY)

(New Regulation)

Full Marks - 75

Time - Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following (MCQ) : (20 × 1 = 20)
- (i) When nonpolar substances are dissolved in a polar solvent using surfactants, the process is called _____?
- (a) HLB (b) Solubilisation
(c) Emulsification (d) Gelatinisation
- (ii) Refractive index is represented by
- (a) n (b) m
(c) λ (d) η
- (iii) The phenomenon of increasing the solubility of nonpolar drugs by addition of surfactants is known as
- (a) Surface solubilization (b) Micellar solubilization
(c) Polar solubilization (d) Non polar solubilization
- (iv) Polymorphs are having
- (a) Different stereochemistry (b) Different crystal structure
(c) Different compositions (d) All of the above
- (v) Henry's law is applicable for
- (a) Solubility of gases in liquids (b) Solubility of liquid in liquids
(c) Solubility of solid in liquids (d) None of these

[Turn over

- (vi) What is the value of R (gas constant) in ideal gas equation?
- (a) 0.821 lit.atm.mole⁻¹ deg⁻¹ (b) 8.321 lit.atm.mole⁻¹ deg⁻¹
(c) 0.831 lit.atm.mole⁻¹ deg⁻¹ (d) 0.841 lit.atm.mole⁻¹ deg⁻¹
- (vii) Contact angle for wetting a solid is
- (a) 0° (b) 90°
(c) 180° (d) 270°
- (viii) When glycine is complexed with cupric ions, pH?
- (a) Decreases (b) Increases
(c) Remains constant (d) First increases and then decreases
- (ix) Examples(s) of non-ionic surfactant is/are _____.
- (a) Glycerol (b) Span
(c) Tween (d) All of the above
- (x) Two solutions having the same osmotic pressure are called
- (a) Isobaric solution (b) Isotonic solution
(c) Hypertonic solution (d) Hypotonic solution
- (xi) White-Vincent method is used to
- (a) Measure tonicity (b) Adjust tonicity
(c) Measure buffer capacity (d) Adjust pH
- (xii) The propellant used in Pharmaceutical aerosols is/are
- (a) Fluorinated hydrocarbons (b) Nitrogen gas
(c) Carbon dioxide gas (d) All of the above
- (xiii) What is the value for permittivity constant (ϵ_0)?
- (a) 8.854×10^{-12} (b) 8.784×10^{-10}
(c) 8.784×10^{-12} (d) 8.845×10^{-10}
- (xiv) The change of state from solid to directly gas is known as
- (a) Fusion (b) Boiling
(c) Sublimation (d) Evaporation

(xv) What is the specific rotation of camphor at 25°C?

- (a) +41 (b) +43
(c) +41 to + 43 (d) None of these

(xvi) What is the HLB value for detergents?

- (a) 3 to 8 (b) 7 to 9
(c) 13 to 16 (d) More than 16

(xvii) The surface tension of liquids is _____ at critical temperature.

- (a) Zero (b) One
(c) Negative (d) Maximum

(xviii) EDTA is

- (a) Unidentate ligand (b) Bidentate ligand
(c) Tetridentate ligand (d) Hexadentate ligand

(xix) Complexes of two or more donor groups with metal ions are called

- (a) Chelates (b) Olefin complex
(c) Inclusion complex (d) Channel lattice type

(xx) Protein binding _____ distribution of drug.

- (a) Increases (b) Decreases
(c) Does not affect (d) Prevents

2. Answer any *seven* questions : (7 × 5 = 35)

- (a) Write in detail about solubility expression of solid in liquid. (5)
(b) Define diffusion. Explain Henderson Hasselbalch equation. (1 + 4 = 5)
(c) What is latent heat of vaporisation and latent heat of fusion?
(d) Describe the principle of eutectic mixture with phase diagram. (2 + 3 = 5)
(e) Write the importance of complexation phenomenon in pharmacy. (5)
(f) Explain hydrophilic lipophilic balance and write its applications in pharmaceutical field. (5)

- (g) Describe any one method which can be used for adjusting the tonicity of a solution. (5)
- (h) Explain ideal and real solution with examples. (5)
- (i) What do you understand by buffer capacity? Explain it. (5)

3. Answer any *two* questions : (2 × 10 = 20)

- (a) What do you understand by polymorphism? Giving suitable examples give its importance in pharmacy. (10)
- (b) Describe the factors affecting critical micelle concentration. (10)
- (c) How the binding of drugs to protein can influence their action? Deduce an equation for scatchard plot for drug protein interaction. (4 + 6 = 10)