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BP 302 T

Roll No. of candidate | | | | | | | | | | |

2021

B.Pharm. 3rd Semester (Regular) End-Term Examination

PHYSICAL PHARMACEUTICS –I (Theory)

(New Regulation)

(w.e.f. 2017-18)

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) Increase the solubility of drugs in water in the presence of additives is known as:

(a) Dissolution (b) Cosolvency

(c) Hydrotropy (d) Solubilisation

(ii) The phenomenon of increasing the solubility of non polar drugs by addition of surfactants is known as:

(a) Surface solubilization (b) Micellar solubilization

(c) Polar solubilization (d) Non polar solubilization

(iii) 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

(iv) What is the value for permittivity constant $(\varepsilon 0)$?

(a) 8.854×10^{-12} (b) 8.784×10^{-15}

(c) 8.784×10^{-12} (d) 8.845×10^{-10}

(v) Refractive index is represented by:

(a) n (b) m

(c) λ (d) η

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

(a) +41 (b) +43

(c) +41 to +43 (d) None of these

(vii) Polymorphs having:

(a) Different stereochemistry (b) Different crystal structure

(c) Different compositions (d) All of the above

(viii) What is the value of R (gas constant) in ideal gas equation?

(a) 0.821 lit.atm.mole-1deg-1 (b) 8.321 lit.atm.mole-1deg-1

(c) 0.831 lit.atm.mole-1deg-1 (d) 0.841 lit.atm.mole-1deg-1

(ix) The critical point of a pure substance refers to:

(a) The highest temperature and pressure for which liquid can coexist

(b) The point at which the saturated liquid and saturated vapour curves meet

(c) The point where vapour pressure has its largest possible value

(d) All of the above

(x) What is the HLB value for detergents?

(a) 3 to 8 (b) 7 to 9

(c) 13 to 16 (d) More than 16

(xi) Contact angle for wetting a solids is

(a) 0° (b) 90°

(c) 180° (d) 270°

(xii) Example(s) of non-ionic surfactant is/are

(a) Glycerol (b) Span

(c) Tween (d) All of the above

(xiii) The surface tension of liquids is ———— at critical temperature.

(a) Zero (b) One

(c) Negative (d) Maximum

(xiv) EDTA is

(a) Unidentate ligand (b) Bidentate ligand

(c) Tetradentate ligand (d) Hexadentate ligand

(xv) Complex of two or more donor groups with metal ions are called

(a) Chelates (b) Olefin complex

(c) Inclusion complex (d) Channel lattice type

(xvi) Protein binding ———— distribution of drug.

(a) Increases (b) Decreases

(c) Does not affect (d) Prevents

(xvii) Two solutions having the same osmotic pressure is called

(a) Isobaric solution (b) Isotonic solution

(c) Hypertonic solution (d) Hypotonic solution

(xviii) White-Vincent method is used to

(a) Measure tonicity (b) Adjust tonicity

(c) Measure buffer capacity (d) Adjust pH

(xix) The ratio of the increment of strong base (or acid) to the Change in pH are called

(a) Buffer capacity (b) Buffer number

(c) Buffer ratio (d) Chelates

(xx) When glycine is complexed with cupric ions, pH:

(a) Decrease (b) Increase

(c) Remains constant (d) First increase and then decrease

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

(a) Define diffusion. Explain Henderson Hasselbalch equation. (1+4=5)

(b) Define optical rotation and specific rotation with its uses. (5)

(c) What is latent heat of vaporisation and latent heat of fusion? Describe the principle of eutectic mixture with phase diagram. (2+3=5)

(d) Derive an expression for the determination of surface tension of a liquid by the capillary rise method. (5)

(e) Described any two methods for the analysis of Complexation. (5)

(f) Write in detail about hydrophilic lipophilic balance and give its utility in pharmaceutical formulation. (5)

(g) What is paratonic solution and hypotonic solution? Explain any two methods for measurement of tonicity. (2+3=5)

(h) Describe ideal and non-ideal solution with suitable examples. (5)

(i) Write note on : (2 × 2.5 = 5)

(i) Biological buffers

(ii) Buffer in pharmaceutical formulations.

3. Answer any *two* questions $(2 \times 10 = 20)$

(a) What is dielectric constant? Write equation for dielectric constant. Describe it with example. (2+2+6= 10)

(b) Discuss in detail the properties of the various states of matter. How does transition take place from one state of matter to another? (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)