B.Pharm. IInd Year (CBCS Pattern) Sem-III

# BP 302T - Physical Pharmaceutics -I

P. Pages : 3 **GUG/W/22/10885**

Time : Three Hours * 1 7 0 6 * Max. Marks : 75

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Notes : 1. Illustrate your answers whenever necessary with the help of neat sketches.
2. All questions are compulsory.

**1.** Multiple choice questions. **20**

1) Refractive index is used to
   a) Measure the concentration of a solute in an aqueous solution.
   b) Calculate the focal power of the lenses and the dispersive power solution.
   c) Estimation of the thermophysical properties of dispersive power of the prisms.
   d) All of the above

2) The solubility of substance depends on the
   a) Solvent used b) Temperature
   c) Pressure d) All of the above

3) Fick's law is used for study of
   a) Diffusion rate b) Dissolution rate
   c) Disintegration rate d) Dissociation rate

4) The unit of diffusion coefficient is
   a) $Cm^2S^1$ b) $Cm^2S^{-1}$
   c) $Cm^2S^{-2}$ d) $Cm^2S^2$

5) The Hansen parameters consist of
   a) Dispersion force component b) Dipole-dipole component
   c) Hydrogen bond component d) All of above

6) The mechanism of polar solvent mainly depends on
   a) High dielectric constant b) Hydrogen bond formation
   c) Dipole interaction d) All of above

7) When solid change to liquid is called
   a) Melting b) Condensation
   c) Sublimation d) Vaporization

8) The solution which obeys the Raoults law is known as
   a) Real Solution b) Ideal Solution
   c) Binary solution d) Supersaturated solution

9) Freely soluble means how many parts of solvent required for 1 part of solute?
   a) 30 to 100 parts b) 100 to 1000 parts
   c) 1 to 10 parts d) 1000 to 10000 parts

10) Surfactants with HLB value more than 16 indicates
   a) Solubilizing agents b) Detergents
   c) Spreading agents d) Wetting agents

11) The solution having an osmotic pressure greater than that of 0.9% w/v sodium chloride is called ---------
   a) Hypertonic solutions b) Hypotonic solution
   c) Isosmotic solution d) Isotonic solution

12) Which of the following methods is/are used to measure unbound drug concentration?
   a) Dynamic dialysis b) Equilibrium dialysis
   c) Ultrafiltration d) All of the above

13) Apparatus used to determine surface tension of liquid is
   a) Capillary tube viscometer b) Du Nouy tensiometer
   c) Rotometer d) Rheometer

14) Dipole moment is used
   a) For predicting the nature of the molecules
   b) Degree of polarity
   c) Shapes of molecules
   d) All of above

15) pH of solution depends on
   a) Henderson-Hasselbalch equation
   b) Henry's law
   c) Charle's law
   d) Dalton's law

16) The rate of diffusion according to Fick's first law of diffusion is proportional to the
   a) Concentration gradient b) Area of the surface
   c) Both a and b d) None of the above

17) The term pH was first used by
   a) Soren Peter Lauritz Sorensen b) James Kelvin
   c) Louis Pasteur d) Alfard Columb

18) The process of formation of two or more separate coordinate bonds between a polydentate ligand and a single central atom.
   a) Chelation b) Complexation
   c) Protein binding d) Association

19) Which of the following is not classification of organic molecular complexes?
   a) Quinhydrone type b) Caffeine complex
   c) Acetic acid type d) Polymeric complex

20) Maximum buffer capacity equals to ----------
   a) 0.576 C b) 2.303 C
   c) 0.2303 C d) 57.6 C

**2.** Solve **any two.** **10x2 =20**

a) Define optical rotation. Discuss a complete method of measurement of optical rotation by polarimeter.

b) State the distribution Law. Discuss the limitations and applications.

c) Describe in details about methods of Analysis of complexation.

**3.** Solve **any seven.** **5x7= 35**

a) Explain different laws that are used to describe behavior of gases.

b) Explain various application of buffer in Pharmacy.

c) Describe the process of detergency.

d) Explain the temperature-composition diagram of phenol-water system and explain the behavior.

e) Explain in detail methods of adjustment of tonicity.

f) Write a short note on Franz diffusion cell.

g) What is dissociation constant? Discuss its significance.

h) Explain about spreading coefficient.

i) Derive an equation for the determination of surface tension of a liquid by the capillary rise method.

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