

B. Pharm. (CBCS Pattern) Semester-III
BP 302T - Physical Pharmaceutics-I

Time : Three Hours



Max. Marks : 75

Notes :

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

20x1
=20

- 1) No chemical bond is involved in ----- type of complex.
a) Clathrates b) Channel lattice
c) Layer d) Chelates
- 2) According to USP, sparingly soluble means then parts of solvent required for one part of solute is-
a) 30-100 b) 10-30
c) 100-1000 d) Less than 1
- 3) Solubility of most gases usually with increase in temperature.
a) Decrease b) Increase
c) Does not change d) First increase and then decrease
- 4) Surface tension of liquid ----- with increase in temperature.
a) Decrease b) Increase
c) No change d) None of above
- 5) Practically value of dielectric constant of air is-
a) 1 b) zero
c) more than 1 d) less than 1
- 6) Pressure required to bring about liquefaction at critical temperature is called-
a) Vapour pressure b) Critical pressure
c) Atmospheric pressure d) None of above
- 7) Cetrimide is example-
a) Cationic surfactants b) Anionic surfactants
c) Non-ionic surfactants d) Ampholytic surfactants
- 8) Both Langmuir and Freundlich isotherms are-
a) Type II isotherm b) Type I isotherm
c) Type III isotherm d) Type IV isotherm
- 9) Gegenions means -----
a) Amphiphiles
b) Ions having a charge opposite to the potential determining ions.
c) Ions having same charge as that of potential determining ions.
d) Potential determining ions.

- 10) Surface free energy is expressed in-
- Ergs
 - N / m^2
 - Newton/meter
 - Dynes/cm
- 11) The stability constant of PABA-Caffeine can be determined by-
- Continuous Variation method
 - Solubility method
 - pH titration
 - Distribution method
- 12) The solution having an osmotic pressure greater than that of 0.9% w/v sodium chloride is called-
- Hypertonic solutions
 - Hypotonic solution
 - Isosmotic solution
 - Isotonic solution
- 13) The mechanism of polar solvent mainly depends on-
- High dielectric constant
 - Hydrogen bond formation
 - Dipole interaction
 - All of above
- 14) The unit of diffusion coefficient is-
- $\text{Cm}^2 \text{S}^1$
 - $\text{Cm}^2 \text{S}^{-1}$
 - $\text{Cm}^2 \text{S}^{-2}$
 - $\text{Cm}^2 \text{S}^2$
- 15) The number of osmoles of solute in a litre of solution is called-
- Osmolarity
 - Osmolality
 - Buffer capacity
 - Molarity
- 16) Maximum buffer capacity (β_{max}) equal to-
- 0.576°C
 - 2.303°C
 - 0.2303°C
 - 57.6°C
- 17) The tonicity of solution can be determined by-
- Colorimetric method
 - Haemolytic method
 - Colligative method
 - Both b and c
- 18) Buffer solution---
- Are strong acids
 - Resist change in pH
 - Decrease the pH of solution
 - Increase pH of solution
- 19) Increasing the volume of an acid solution ----- the pH of solution ----- the pka of the acid.
- Will increase and will not alter
 - Will decrease and will not alter
 - Will not alter and will not alter
 - Will not alter and will increase
- 20) Gold number of gelatin is-----
- 0.1-0.2
 - 1-5
 - 0.005-0.01
 - 2-5

- 2. Solve any two.** **2x10**
=20
- a) Write in detail about Raoult's law with help of following point,
i) Statement of law, ii) Ideal solution and real solution
iii) Positive deviation iv) Negative deviation
- b) Describe in detail methods of analysis of complex.
- c) Define Surface tension. Derive an equation for the determination of surface tension of a liquid by the capillary rise method.

- 3. Solve any seven.** **5x7**
=35
- a) Write a note on adsorption isotherm for solid surface adsorption.
- b) Write a note on:
i) Biological buffers
ii) Buffers in pharmaceutical formulations
- c) What are buffers? Derive the buffer equation for a weak acid and its salt.
- d) Explain kinetics of protein binding.
- e) Explain critical solution temperature and its applications.
- f) Write a note on liquid crystals and its types.
- g) Explain in brief about surface free energy.
- h) Define refractive index. Explain principle & working of Abbe's refractometer.
- i) Define diffusion. Give the Fick's and second laws of diffusion.
