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Set **P**

**B.Pharm. (Sem. – III) (New CBCS) Examination, 2018
PHYSICAL PHARMACEUTICS – I**

Day and Date : Tuesday, 11-12-2018

Total Marks : 75

Time : 10.30 a.m. to 1.30 p.m.

I. Choose the correct alternative : **(20×1=20)**

- 1) An Azetropic mixture of two liquids boils at lower temperature than either of them when
 - A) It is saturated
 - B) It shows positive deviation from Raoult's law
 - C) It is Metastable
 - D) It shows negative deviation from Raoult's law
- 2) Colligative properties are the properties of the solution that depends upon
 - A) Nature of molecules
 - B) Quality
 - C) Physical properties
 - D) Number of Molecules
- 3) The solubility of gases increases in liquid with decreasing
 - A) Mass
 - B) Volume
 - C) Temperature
 - D) Pressure
- 4) If a solution has to be a buffer, its pH should be
 - A) As its pKa value
 - B) At is Ka Value
 - C) At 7
 - D) At 14
- 5) The vander Waal radius of hydrogen atom in water molecule is
 - A) 1.2 Å°
 - B) 1.4 Å°
 - C) 1.6 Å°
 - D) 1.8 Å°
- 6) Normal pH of blood is
 - A) 7.0
 - B) 7.2
 - C) 7.1
 - D) 7.4

P.T.O.



- 7) The Heat of vaporization of water molecules at atmospheric temperature is
- A) 1260 J/g
 - B) 2260 k.cal
 - C) 2260 J/g
 - D) 1260 k.cal
- 8) Ions which are produced from ligands are
- A) Cations
 - B) Complex ion
 - C) Anion
 - D) All of them
- 9) Terms and conditions of Nernst's law
- A) Constant Temperature
 - B) Dilute solution
 - C) Non-miscible solvents
 - D) All
- 10) In Nematic crystals, molecules are mobile in how many dimensions.
- A) One
 - B) Two
 - C) Three
 - D) Zero
- 11) Buffer Capacity is the maximum at
- A) $pK_a = pH$
 - B) $pK_a < pH$
 - C) $pK_a = \text{Concentration}$
 - D) $pK_a > pH$
- 12) At Constant temperature the solubility of gas in a liquid is proportional to the pressure of the gas above it is called as
- A) Raoult's law
 - B) Henry's law
 - C) Graham's law
 - D) None of above
- 13) The Amorphous form of drug dissolves _____ than the crystalline form.
- A) Faster
 - B) Slower
 - C) Equal to one
 - D) Does not dissolve
- 14) Spreading agents usually have an HLB value in the ranges
- A) 0-3
 - B) 9-12
 - C) 7-9
 - D) 8-16



- 15) The pK_w at 25°C is
A) 7.0 B) 10
C) 5.0 D) 14
- 16) When a suitable pH of solution is added to an acidic drug, the solubility is promoted due to
A) Enhanced ionization B) Formation of drug solvates
C) Formation of salt D) Improved stability
- 17) The Partition coefficient considers the solute concentration as one of the following (molecular) species
A) Dimer B) Dissociated Ion
C) Hydrate and Solvate D) Monomer
- 18) Which of the following is not a multiple ligand ?
A) EDTA B) Ammonia
C) Deferoxamine D) Dimethylglyoxime
- 19) Protein binding _____ distribution of drugs.
A) Increases B) Prevents
C) Decreases D) None of these
- 20) The rapid increase in solubility of a surfactant solution above a definite temperature is known as
A) Cloud point B) Krafft point
C) CMC D) Triple point

II. Solve **any two** :

(2×10=20)

- a) Explain in detail methods used for liquification of gases.
- b) What is adsorption isotherm ? Discuss in detail Freundlich and Langmuir adsorption Isotherm.
- c) Define partition coefficient. Explain its derivation and principle behind Association and dissociation of molecules.



III. Solve **any seven** :

(7×5=35)

- 1) Define Critical Solution Temperature. Write note on UCT and LCT.
 - 2) What is Kinetic Molecular Theory ? Give its assumptions for Kinetic Molecular Theory.
 - 3) Explain factors affecting on solubility of gases in liquids.
 - 4) Explain buffer equations for weak acid and its salt.
 - 5) Discuss methods used to determination of pH.
 - 6) Discuss methods for determination of Complexation.
 - 7) Explain the mechanism of Solute-Solvent Interaction.
 - 8) Write note on Eutectic Mixtures and Polymorphism.
 - 9) Discuss in detail Spreading Coefficient.
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