

Exam Date & Time: 19-Dec-2022 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Physical Pharmaceutics I [PCE-BP302T - S2]

Marks: 75

Duration: 180 mins.

I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

- 1) A substance X is placed in a mixture of immiscible liquids Y and Z. Substance X dissolves in both Y and Z to form solutions W and F respectively. Identify the solute/s. (1)
- 1) W and F 2) Y and Z 3) X only 4) Z only
- 2) Solution of a solute in any solvent at given temperature is referred as ----- (1)
- 1) Saturated solution 2) Supersaturated solution 3) Unsaturated solution 4) true solution
- 3) Example for real solution showing negative deviation from Raoult's law----- (1)
- 1) Acetone-benzene mixture 2) acetone-chloroform mixture 3) Benzene-toluene mixture 4) Nicotine-water mixture
- 4) System on the 'tie line' in phenol-water phase diagram represents----- (1)
- 1) A pair of immiscible solvents 2) A pair of partially miscible solvents 3) single phase system 4) a pair of conjugate solutions
- 5) Calculate the concentration in %w/v of a solution containing 25 gm of NaCl in 350 ml of aqueous solution. (1)
- 1) 10.71 % w/v 2) 14.0 % w/v 3) 7.14 % w/v 4) 6.66% w/v
- 6) Which of the following units has been used in relating the concentration of a solution with its vapor pressure in Raoult's law? (1)
- | | | | |
|------------------|--------------------|-------------|----------------------|
| 1) mole fraction | 2) Mass percentage | 3) Molarity | 4) parts per million |
|------------------|--------------------|-------------|----------------------|
- 7) The compound which reduces the interfacial tension between two liquids (1)
- | | | | |
|------------|---------|-------------------------|----------|
| 1) Micelle | 2) Span | 3) Surface active agent | 4) Tween |
|------------|---------|-------------------------|----------|
- 8) Lamellar micelles are formed in ----- (1)

- Dilute surfactant solutions below cmc
 1) solutions below cmc
- Dilute surfactant solutions above cmc
 2) solutions above cmc
- Concentrated surfactant solutions below cmc
 3) solutions below cmc
- Concentrated surfactant solutions above cmc
 4) solutions above cmc
- 9) Physical adsorption-----
- 1) forms multi-molecular layers
 2) Takes place at high temperature
 3) Is irreversible
 4) Forms monomolecular layer (1)
- 10) Why the pH of Vitamin B complex elixir to be maintained between 4 to 5?
- 1) For comforting the body
 2) To maintain the solubility
 3) To maintain the palatability
 4) to maintain the stability (1)
- 11) What is the useful pH range of indicator with pKa value 6.8?
- 1) 4.8 to 9.2 2) 4.2 to 7.4 3) 5.3 To 8.3 4) 6.2 to 7.6 (1)
- 12) Which of the following is the relation between Hydrogen ion and hydroxyl ion concentration of pure water?
- 1) Value of hydrogen ion concentration is greater
 2) Value of hydroxyl ion concentration is greater
 3) The concentrations keep changing
 4) They are both always same (1)
- 13) Vapor pressure of a liquid _____ with an increase in temperature
- 1) Decreases 2) Increases 3) Does not change 4) First increases and then decreases (1)
- 14) What kind of liquid crystal appear as layer like textures when observed under polarizing microscope?
- 1) Nematic 2) Smectic 3) Cholesteric 4) All the above (1)
- 15) _____ complexes show cage shaped structures.
- 1) Channel type inclusion complexes
 2) Chelates
 3) Monomolecular inclusion complexes
 4) Clathrates (1)

- 16) Quinhydrone complex is an example of _____.
- 1) Monomolecular inclusion complex 2) Chelate 3) Organic molecular complex 4) Clathrate complex (1)
- 17) Administration of _____ solution produces haemolysis.
- 1) Hypotonic 2) Isotonic 3) Hypertonic 4) All of the above (1)
- 18) Buffer solutions _____ of a solution.
- | | | | |
|-----------------------------------|--------------------|--------------------|-----------------------------|
| 1) Either increase or decrease pH | 2) increase the pH | 3) decrease the pH | 4) resist changes in the pH |
|-----------------------------------|--------------------|--------------------|-----------------------------|
- (1)
- 19) Buffer system present in human plasma mainly include.....
- 1) Carbonic acid 2) Boric acid 3) Acetic acid 4) Sulphuric acid (1)
- 20) Dextrose solution of 2%w/v is _____ with physiological fluids.
- 1) hypertonic 2) hypotonic 3) isotonic 4) none of the above (1)

II Long Answers

Answer all the questions.

- 1) Describe phenol-water system with neat labelled phase diagram.(7+3) (10)
- 2) Write about the concept and pharmaceutical applications of dipole moment (5). Write about the concept of vapor pressure and explain its measurement. (5) (10)

III Short Answers

Answer all the questions.

- 1) Define adsorption isotherm and explain Langmuir adsorption isotherm curve.(1+4) (5)
- 2) Briefly write on spreading coefficient and mention its any three applications.(2+3) (5)
- 3) Write about the significance of polymorphism on the stability and solubility of drugs. (5)
- 4) Explain the pharmaceutical applications of chelates. (5)
- 5) Discuss the kinetics of protein binding using double reciprocal plot. (5)
- 6) Differentiate between colorimetric and electrometric method of pH estimation. (5)
- 7) Write about the buffers used in solid and semisolid dosage forms. (5)

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