

Exam Date &amp; Time: 31-Jan-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) Buffers used to determine the solubility from the bio-pharmaceutics view are ----- (1)
- 1) pH 1 to 14    2) 0.1 N HCl and 0.1 N NaOH    3) pH 1 to 7    4) pH 1.2, 6.8, 7 and 8
- 2) Solubility of all gases \_\_\_\_\_ as the temperature of the solution increases (1)
- 1) Increases    2) decreases    3) Increases and decreases    4) Decreases and increases
- 3) Which of the following is an example for an ideal solution? (1)
- Chloroform and benzene and Benzene and Water and  
(1)
- 1) 2) 3) 4) ethanol acetone mixture toluene mixture acetone mixture mixture
- 4) Partially miscible liquids are influenced by----- (1)
- 1) pressure    2) pH    3) time    4) temperature
- 5) The miscibility of nicotine in water is governed by ..... (1)
- 1) Molecular state    2) Temperature    3) Equilibrium condition    4) Partition law
- 6) Sodium chloride in water-benzene system exists as----- (1)
- dissociated form in    monomer in    dimer in  
1)    2)    aqueous layer aqueous    3) benzene    dissociated form  
layer    layer    layer    4) in aqueous layer
- 7) Micelles assume ----- shape near cmc (1)



base acid electrophile acceptor

- 17) Administration of \_\_\_\_\_ solution produces haemolysis. (1)  
 1) Hypotonic 2) Isotonic 3) Hypertonic 4) All of the above
- 18) When pH can be equal to pKa for a weak acid? (1)  
 1)  $[\text{Acid}]/[\text{Salt}] = 0$  2)  $[\text{Acid}]/[\text{Salt}] < 1$  3)  $[\text{Acid}]/[\text{Salt}] > 1$  4)  $[\text{Acid}]/[\text{Salt}] = 1$
- 19) Buffer solutions \_\_\_\_\_ of a solution. (1)  
 Either increase or \_\_\_\_\_ increase the \_\_\_\_\_ decrease the \_\_\_\_\_ resist changes in  
 1) 2) 3) 4) decrease pH pH pH the pH
- 20) Which buffer system is mainly a biological buffer in blood plasma? (1)  
 1) Boric acid 2) Carbonic acid 3) Acetic acid 4) Citric acid

### II Long Answers

Answer all the questions.

- 1) Discuss Phenol-Water system with neat labelled phase diagram. (10)
- 2) Discuss the concepts of optical rotation and dipole moment and their applications. (10)

### III Short Answers

Answer all the questions.

- 1) Explain the micelle formation with neat diagram.
- 2) Define adsorption isotherm and mention the four Langmuir adsorption isotherm assumptions.
- 3) Discuss the concepts of polymorphism and pseudopolymorphism.

- 4) Write about the pharmaceutical applications of monomolecular inclusion complexes.
  
- 5) Explain the kinetics of protein binding of drugs using double reciprocal plot.
  
- 6) Briefly write on specific features of indicators.
  
- 7) Discuss the derivation of buffer equation for a buffer system containing weak base and its salt.

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