

Exam Date & Time: 28-Apr-2022 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Physical Pharmaceutics I [PCE-BP302T]

Marks: 75

Duration: 180 mins.

I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

- 1) 'Drug M' and 'Drug N' show partition coefficient of 4.5 and 50.70 respectively in chloroform/water system which indicates.....
- 1) 'Drug M' is more soluble in water than 'Drug N' 2) 'Drug N' is more soluble in water than 'Drug M' 3) 'Drug M' is more soluble in chloroform than 'Drug N' 4) 'Drug N' is less soluble in chloroform than 'Drug M' (1)
- 2) increase the solubility of solutes by decreasing the interfacial tension between the solute and solvent. (1)
- 1) surfactants 2) polymers 3) co-solvents 4) electrolytes
- 3) -----parts of solvent is required to dissolve one part of sparingly soluble drug (1)
- 1) 30-100 2) 100- 1000 3) 10-30 4) 1000-10000
- 4) The mixture of 23% w/w of phenol in water at 50 degree centigrade forms ----- (1)
- 1) One phase system 2) Turbid solution 3) Two conjugate phases 4) Separates into two immiscible liquids
- 5) Calculate the concentration in %w/w of a solution containing 30 gm of chemical in 200 gm of water (1)
- 1) 15.0 % w/w 2) 13.04 % w/w 3) 30.0 % w/w 4) 17.6 % w/w
- 6) The benzoic acid in benzene/water mixture exists as at equilibrium condition (1)
- 1) Monomer in benzene and dimer in aqueous phase 2) Same molecular state in both the phases 3) Monomer in aqueous and dimer in organic phase 4) Complex form in both the phases

- 7) ----- method requires minimum amount of liquid for the determination of surface tension (1)
- 1) Capillary rise 2) Drop count 3) Drop weight 4) Du Nouy Tensiometer
- 8) -----is the example for cationic surfactant (1)
- 1) cetyl triethyl ammonium bromide 2) Ammonium lauryl sulfate 3) Polyoxyethylene lauryl ether 4) Sorbitan mono oleate
- 9) When span 80 is dissolved in oil, at slightly above the critical micelle concentration, the arrangement of span molecule is: ----- (1)
- 1) laminar arrangement 2) tail face the air at the interface 3) tail face the centre of the micelle 4) head face the centre of micelle
- 10) Colour of the indicator changes during titration due to ----- (1)
- 1) Increase in the pH of the solution 2) Decrease in the pH of the solution 3) Reaching neutral pH 4) changes in the degree of ionization
- 11) Buffer solutions used for the calibration of pH electrodes are----- (1)
- 1) pH 3.0 to 11.0 2) pH 1. To 14.0 3) pH 7, 4 and 9.14 4) pH 4, 7 and 10
- 12) pH scale is established by----- (1)
- 1) Henderson-Hasselbalch 2) Griffin 3) Nernst 4) Sorensen
- 13) The change of state from a gas to a solid is known as _____. (1)
- 1) Fusion 2) Boiling 3) Deposition 4) Evaporation
- 14) _____ type of liquid crystal consist of parallel molecules in layers. (1)
- 1) Cholesteric 2) Smectic 3) Nematic 4) All the above
- 15) A ligand _____ in coordination complexes. (1)
- 1) Donates a pair of electrons 2) Accepts one electron and share it 3) Accepts a pair of electrons 4) Donate one electron and share it
- 16) Organic molecular complexes are formed by _____. (1)

- 1) Caffeine 2) Quinhydrone 3) Picric acid 4) All of the above

17) Buffer system present in human plasma include.....

- 1) Carbonic acid 2) Boric acid 3) Acetic acid 4) Sulphuric acid

(1)

18) 0.5%w/v sodium chloride solution is said to be _____ with physiological fluids.

- 1) hypertonic 2) hypotonic 3) isotonic 4) none of the above

(1)

19) Buffer capacity can be defined as the ratio of increment of strong acid or base to the _____

- 1) Change in pH 2) Change in buffer index 3) Change in viscosity 4) Change in osmotic pressure

(1)

20) What is the pH of the buffer solution containing 0.4M of acetic acid and 0.4M of sodium acetate, respectively? (pKa of acetic acid is 4.76).

- 1) 4.46 2) 4.76 3) 5.06 4) 5.36

(1)

II Long Answers

Answer all the questions.

1) Deduce the Langmuir adsorption isotherm for the adsorption at gas-solid interface and explain it.

(10)

2) Discuss the concepts of refractive index and dipole moment and their applications.

(10)

III Short Answers

Answer all the questions.

1) Explain the effect of temperature on solubility of solids in liquids.

(5)

2) Discuss the limitations of Nernst's Distribution law.

(5)

3) Write short notes on changes in the states of matter.

(5)

4) Write about the pharmaceutical applications of chelates.

(5)

5) Explain the kinetics of protein binding of drugs using direct plot.

(5)

6) Briefly write on pH determination by colorimetric method.

(5)

7) Discuss the derivation of buffer equation for a buffer system containing weak acid and its salt

(5)

-----End-----

