Register Number									

Question Paper

Exam Date & Time: 03 April 2021 (2 pm to 5 pm)

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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 (2 pm to 2:30 pm)

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No.	Question
1	Addition of indifferent electrolyte -------- the solubility of sparingly soluble electrolyte. May decrease May increase or decrease based on interaction. May increase May not effect
2	In Pharmacopeia solubility is expressed as ---------- Percentage w/w Molality Parts of solute dissolved in one part of solvent Parts of solvent needed for one part of solute
3	In a solution containing 0.36 kg mole of solute and 600 kg of solvent, the molality is---------- 0.5 0.6 1.0 2.0
4	The 'tie line' in phenol-water phase diagram is---------------- Line joining any two points on phase diagram Vertical line drawn at equilibrium Line representing single phase system at given temperature Parallel to the base line at any temperature
5	The miscibility of nicotine in water is governed by .... Molecular state Temperature Equilibrium condition Partition law
6	Which factor is necessary for an equilibrium to follow the Partition Law? the temperature must be constant the solute must exist in the liquid state the solutions formed must be concentrated the solute must react with one of the solvents
7	Surfactants are .... in nature Hydrophilic Lipophilic Amphiphilic None of the above
8	If surface area of the liquid increases ------------- Surface tension increases Surface free energy increases Surface tension decreases Surface free energy decreases
9	'Tweens' are hydrophilic and 'Spans' are lipophilic in nature: the sorbitan ring in these molecule represents ------------ hydrophilic group lipophilic group ionic group neutral group
10	The [H+] ion concentration of pure water is------- 1×10^{14} 1×10^{-14} 1×10^{7} 1×10^{-7}

11	Amphoteric compounds are least soluble at their......
	At acidic pH At their isoelectric point At basic pH At physiological pH
12	The pH meter is calibrated by using standard buffers of pH in following order.......
	4.0, 7.0 and 11.0 4.0, 7.0 and 9.14 7.0, 4.0 and 11.0 7.0, 4.0 and 9.14
13	Vapor pressure _____ with an increase in temperature.
	Increases Decreases Will not change First increases and then decreases
14	Energy required for a solid state substance to convert to liquid state without any change in temperature of material is known as _____.
	Latent heat of vaporization Latent heat of sublimation
	Latent heat of fusion Latent heat of condensation
15	EDTA is an example of _____ ligand.
	Unidentate Bidentate Tetradentate Hexadentate
16	Solubility of poorly soluble drugs is increased by β-Cyclodextrin by _____
	Cosolvency Inclusion complexation Chemical modification Chelate formation
17	Buffer capacity is expressed as the amount of strong acid or base, in gram-equivalents, that must be added to one liter of the solution to change its pH by _____ unit/units
	Zero One Two Three
18	Which of the following is a biological buffer system in human plasma?
	Carbonic acid Sulphuric acid Acetic acid Hydrochloric acid
19	What is the pH of the buffer solution containing 0.2M of acetic acid and 0.4M of sodium acetate, respectively? (pKa of acetic acid is 4.76).
	4.46 4.76 5.06 5.36
20	Administration of _____ leads to shrinkage of red blood cells.
	Hypotonic solution Hypertonic solution Isotonic solution All of the above

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Exam Date & Time: 03 April 2021 (2 pm to 5 pm)

MANIPAL ACADEMY OF HIGHER EDUCATION
Physical Pharmaceutics I [PCE-BP302T]

Section Duration: 150 mins (2:30 pm to 5 pm)

II Long Answers

Answer all the questions.

1) Define and derive Nerns't distribution law. (10)

2) Write short notes on Optical rotation and Eutectic mixtures (10)

III Short Answers

Answer all the questions.

1) Explain the factors affecting surface tension of the liquid. (5)

2) Define adsorption and mention the FOUR assumptions made in deriving Langmuir adsorption isotherm. (5)

3) Write about monomolecular inclusion complexes and their pharmaceutical applications. (5)

4) Explain kinetics of protein binding of drugs using double reciprocal plot. (5)

5) Discuss polymorphism and its effect on stability and solubility of drugs. (5)

6) Mention two methods to determine the pH of a solution and their significance. (5)

7) Derive buffer equation for the buffer system containing weak base and its salt. (5)

-----End-----