

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2020

Course: Physical Pharmaceutics I

Program: B. Pharm.

Course Code: BP302T

Instructions: All the sections are compulsory.

Semester: III

Time: 03 hrs.

Max. Marks: 75

SECTION A

S. No.	CO		Marks
		Answer all the questions.	20
1.	CO1	The ratio concentration of solute in organic phase to aqueous phase in binary systems at equilibrium is known as? A. Diffusivity B. Diffusion Co-efficient C. Solubility D. Permeability	1
2.	CO2	Identify the example of colligative property of solute from the following. A. Freezing point depression B. Molecular weight C. Refractive Index D. Optical Rotation	1
3.	CO4	Define chelates.	1
4.	CO1	Rault's law states that "partial vapor pressure of each volatile constituent is equal to the product of vapor pressure of pure constituent and A. its mole fraction in the solution B. its molecular weight C. its molar concentration in the solution D. its concentration as normality	1
5.	CO3	According to Langmuir adsorption isotherm, Rate of adsorption is _____ spaces on the surface of adsorbent. A. Directly proportional to unoccupied B. Inversely proportional to unoccupied C. Directly proportional to occupied D. Inversely proportional to occupied	1
6.	CO4	What is the characteristic of co-ordinate bond?	1
7.	CO1	For weak acids, when pH of the solution is 2 units higher than pKa, the % ionization of weak acid is%. A. 50 B. 90.9 C. 99 D. 99.9	1
8.	CO1	Permeability of solute through semi-permeable membrane is directly proportional to diffusivity of solute. A. True B. False	1
9.	CO3	Permeability of solute through semi-permeable membrane is directly proportional to diffusivity of solute. A. True B. False	1
10.	CO4	The bound drug inherits the diffusional characteristics of the protein molecule. A. True B. False	1

11.	CO3	Define critical micellar concentration.	1
12.	CO4	If drug is about 90 % bound to plasma proteins to, the duration of drug action will..... A. Remain unaltered B. decrease C. increase D. None of the above	1
13.	CO3	Surface-active agents are used as _____. (Select all possible options) B. Emulsifier B. Foaming agent C. Anti-foaming agent D. All of the above	1
14.	CO2	Aerosol is an example of..... A. Homogenous mixture B. Solution C. Emulsion D. Dispersion	1
15.	CO2	Write any one application of dielectric constant.	1
16.	CO5	Define buffer capacity.	1
17.	CO5	What is pH?	1
18.	CO5	Name the scale that is used to determine pH of a solution on the scale 1 to 14?	1
19.	CO2	Which of the following instrument is used to determine refractive index? A. Refractometer B. Polarimeter C. Conductometer D. Tensiometer	1
20.	CO5	Which of the following method is used to adjust tonicity of the pharmaceutical formulations? B. Addition of surfactant B. Freezing point depression C. Boiling point depression D. None of the above	1

SECTION B

Answer any two questions of the following.

20

1.	CO1	a) Explain Fick's First Law of diffusion. b) Discuss the characteristics of Passive and active diffusion in biological systems.	5+5
2.	CO2	Write a short note on following physico-chemical properties. a) Optical Rotation b) Refractive Index	5+5
3.	CO4	a) Write a classification of types of complexes. b) Discuss any two types in detail.	2 + 8

SECTION C

Answer any seven questions of the following.

35

1.	CO5	Why intravenous formulations should be isotonic to blood plasma?	5
2.	CO1	How does molecular structure / functional groups in molecule affect the solubility of solute in solvents?	5

3.	CO3	Write a short note on capillary rise method for determination of surface tension.	5
4.	CO5	Discuss applications of buffered solutions in formulation of certain pharmaceutical systems or dosage forms.	5
5.	CO3	How micellar solubilization approach enhances the solubility of hydrophobic drugs in aqueous solution?	5
6.	CO2	Enlist the properties of liquid phase.	5
7.	CO5	What is pH of a solution? Discuss any two methods of pH determination.	5
8.	CO4	Discuss the effect of complexation and drug action with examples.	5
9.	CO3	Discuss physical and chemical adsorption.	5
		Total	75