Name: Enrolment No:	UPES UNIVERSITY OF TOMORROW

UPES
End Semester Examination, December 2024

Course: Physical Pharmaceutics I **Semester : III**
Program: B. Pharm **Duration : 03 Hours**
Course Code: BP302T **Max. Marks: 75**

Instructions: Read all the questions carefully. Follow the instructions mentioned against each section.

SECTION A
(20Qx1M=20 Marks)

S. No.		Marks	COs
Q 1	Branching of a carbon chain reduces the non-polarity of the molecule and enhances solubility in aqueous solvents. A. True B. False	1	CO1
Q 2	Define diffusion.	1	CO1
Q 3	State Raoult's Law.	1	CO1
Q 4	Fick's law describes the _____ phenomenon. A. Distribution B. Sublimation C. Diffusion D. Solubilization	1	CO1
Q 5	Solids are highly compressible. A. True B. False	1	CO2
Q 6	The conversion from gaseous to solid phase is known as_____. A. Deposition B. Sublimation C. Melting D. Freezing	1	CO2
Q 7	Optical activity is a property exhibited only by chiral molecules. A. True B. False	1	CO2
Q 8	_____ is used to measure the refractive index of a solution. A. Temperature B. Concentration C. External Pressure D. Wavelength of light	1	CO2
Q 9	Select the example of an additive property. A. Refractive Index B. Dipole moment C. Optical rotation D. Molecular weight	1	CO2
Q 10	The term 'aggregation number' in the context of micelles refers to_____. A. Number of micelles formed per unit volume B. Number of surfactant molecules in a micelle **C.** Concentration of surfactant at CMC **D.** Number of water molecules in the micelle	1	CO3
Q 11	Foams are examples of _____ type of dispersion. A. Solid in gas B. Liquid in gas C. Solid in liquid D. Gas in liquid	1	CO3

Q 12	Desorption can be facilitated by decreasing temperature. A. True B. False	**1**	**CO3**
Q 13	Select the statement of the following that best describes physical adsorption. A. Involves strong chemical bonds B. Characterized by low heat of adsorption **C.** Irreversible process **D.** Highly specific to the adsorbent	**1**	**CO3**
Q 14	_____ isotherm is characterized by a sigmoidal shape and is described by the BET equation. A. Type I B. Type III C Type II D. Type IV	**1**	**CO3**
Q 15	The _____ number is the number of donor atoms bonded to the central metal atom/ion. A. coordination B. aggregation C. chelation D. Avogadro's	**1**	**CO4**
Q 16	Drug – β cyclodextrin complexes are clathrate type of complexes. A. True B. False	**1**	**CO4**
Q 17	For separation of petroleum products, generally _____ of complexes are employed. A. Layer type B. clathrate type C. channel lattice type D. organometallic type	**1**	**CO4**
Q 18	A buffer solution is typically made from which of the following combinations? A. Weak acid and its conjugate base B. Salt and water C. Strong acid and strong base D. Strong acid and its conjugate base	**1**	**CO5**
Q 19	State the method used to calculate isotonicity of solution.	**1**	**CO5**
Q 20	Define buffer capacity.	**1**	**CO5**
	SECTION B (20 Marks) **(2Qx10M=20 Marks)** **Attempt 2 Question out of 3**		
Q 1	a. Summarize the significance of distribution coefficient. b. Derive the equation for Fick's first law at steady state.	**5+5**	**CO1**
Q 2	a. Discuss the surface free energy. b. Categorize the surfactants with examples.	**5+5**	**CO3**
Q 3	a. Describe the term" Vapor pressure" and factors affecting it. b. Explain the eutectic mixtures with example.	**6+4**	**CO2**
	SECTION-C (35 Marks) **(7Qx5M=35 Marks)** **Attempt 7 Question out of 9**		
Q 1	Write a short note on biological buffers.	**5**	**CO5**
Q 2	Classify and explain briefly the types of physical properties.	**5**	**CO2**
Q 3	Enlist the assumptions of molecular theory of gases.	**5**	**CO2**
Q 4	a. Define critical micellar concentration. b. Explain the utilization of micelle in solubilization of poorly soluble drugs.	**1+4**	**CO3**

Q 5	Justify the statement. “The weakly acidic drugs are mostly unionized in stomach.”	**5**	**CO1**
Q 6	Interpret the significance of complexation in the pharmaceutical industry.	**5**	**CO4**
Q 7	Define buffer and explain buffer capacity.	**1+4**	**CO5**
Q 8	Describe channel lattice type of complexes.	**5**	**CO4**
Q 9	Name and explain any one method to estimate the surface tension.	**5**	**CO3**