Name: Enrolment No:	UPES UNIVERSITY OF TOMORROW

UPES

End Semester Examination, December 2025

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	Weak acids become more ionized when pH of the solution increases. A. True B. False	1	CO1
Q 2	If the drug is said to be soluble in solvent, one part of drug should be soluble in _____ parts of solvents. A. less than 1 B. 1 to 10 B. 10 to 30 D. 30 to 100	1	CO1
Q 3	State Nernst Law.	1	CO1
Q 4	The driving force for the diffusion to occur is _____. A. temperature gradient B. concentration gradient C. height gradient D. air pressure	1	CO1
Q 5	For weak bases, when pH of the solution is 2 units less than pKa, the % ionization of weak bases is _____%. A. 50 B. 90.9 C. 99.9 D. 99	1	CO1
Q 6	Freezing point depression is an example of _____ properties. A. additive B. constructive C. optical D. colligative	1	CO2
Q 7	The collisions exhibited by gas particles are completely non-elastic. A. True B. False	1	CO2
Q 8	Nematic liquid crystals exhibit_____. A. positional order only B. both positional and orientational order C. no specific order D. no positional but orientational order	1	CO2
Q 9	Sublimation is the process where_____. A. liquid changes to gas B. solid changes to liquid C. solid changes directly to gas D. liquid changes directly to solid	1	CO2
Q 10	Optical rotation requires plane-polarized light. A. True B. False	1	CO2
Q 11	The formation of micelles is primarily dependent on which factor? A. temperature B. critical Micelle concentration C. pressure D. pH	1	CO3
Q 12	Chemisorption involves low heat of absorption.	1	CO3

	A. True B. False		
Q 13	Surfactants reduce surface tension because they _____. A. increase cohesive forces B. increase density C. form precipitates D. accumulate at interfaces	**1**	**CO3**
Q 14	Interfacial tension becomes zero when two liquids are _____. A. immiscible B. partially miscible C. completely miscible D. solidified	**1**	**CO3**
Q 15	Define chelating agent.	**1**	**CO4**
Q 16	Cholic acid-urea complexes are layer types of complexes. A. True B. False	**1**	**CO4**
Q 17	Caffeine and PABA is an example of _____ complexes. A. hydrogen bond type B. clathrate type C. channel lattice type D. organometallic type	**1**	**CO4**
Q 18	Select the composition of isotonic solution. A. 2.0%w/v sodium chloride solution B. 0.9%w/v sodium chloride solution C. 2.5%w/v boric acid solution D. 0.9%w/v boric acid solution	**1**	**CO5**
Q 19	State the composition of the acidic buffer.	**1**	**CO5**
Q 20	Ophthalmic drops need to comply with the requirement of isotonicity. A. True B. False	**1**	**CO5**
	SECTION B (20 Marks) **(2Qx10M=20 Marks)** **Attempt 2 Question out of 3**		
Q 1	a. Summarize the significance of studying solubility. b. Explain the Rault's law with its positive and negative deviation.	**4+6**	**CO1**
Q 2	a. Write short notes on Langmuir adsorption isotherm and its assumptions. b. Explain the term 'spreading co-efficient'.	**6+4**	**CO3**
Q 3	a. Justify. "Para-diclorobenzene do not have net dipole moment". b. Explain relative humidity.	**6+4**	**CO2**
	SECTION-C (35 Marks) **(7Qx5M=35 Marks)** **Attempt 7 Question out of 9**		
Q 1	Explain the buffers in biological systems.	**5**	**CO5**
Q 2	Describe the dielectric constant and state its application.	**5**	**CO2**
Q 3	Illustrate and discuss the impact of structure of molecule on optical rotation.	**5**	**CO2**
Q 4	Describe hydrophilic-lipophilic balance scale and its applications.	**5**	**CO3**
Q 5	Differentiate active and passive diffusion.	**5**	**CO1**
Q 6	Discuss the process of complex formation with the help of the mechanism of coordinate bond formation.	**5**	**CO4**
Q 7	Write a short note on buffer capacity.	**5**	**CO5**
Q 8	Illustrate the solubility method of analysis of complex formation.	**5**	**CO4**
Q 9	Explain the wetting phenomena on the basis of angle of contact.	**5**	**CO3**