Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.PHARM – SEMESTER – 3 EXAMINATION – WINTER-2025

Subject Code: BP302TP **Date: 10-12-2025**

Subject Name: Physical Pharmaceutics I

Time:10:30 AM TO 01:30 PM **Total Marks: 80**

Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	(a)	Define solubility. Describe law governing solubility of gases in liquids.	**06**
	(b)	Discuss distribution law with its limitations and applications.	**05**
	(c)	State the Raoult's Law. Discuss deviations from Raoult's Law.	**05**
Q.2	(a)	Describe partially miscible liquids using phenol- water system.	**06**
	(b)	Difference between ideal solution and real solution.	**05**
	(c)	Define Refractive Index. How is it determined? Give its application.	**05**
Q.3	(a)	Define surface tension. Describe capillary rise method to measure it.	**06**
	(b)	Write a short note on Spreading Coefficient.	**05**
	(c)	Explain: Interface, HLB, detergency, CMC of surfactant, ordered mixture.	**05**
Q.4	(a)	Explain chelates. Classify complexes in detail.	**06**
	(b)	Discuss the applications of complexation in pharmacy.	**05**
	(c)	Explain protein binding of drug. Describe how it affects the drug action.	**05**
Q.5	(a)	Explain adsorption isotherm. Derive the Langmuir isotherm for gas.	**06**
	(b)	Define sublimation. Describe eutectic mixtures with suitable examples.	**05**
	(c)	Discuss the structure, properties and significance of liquid crystals.	**05**
Q. 6	(a)	Discuss amorphism and polymorphism with their importance in formulation.	**06**
	(b)	Explain the term 'wetting'. Give its applications in pharmacy.	**05**
	(c)	Describe the methods of adjusting tonicity.	**05**
Q. 7	(a)	Explain pH. Discuss Sorenson's pH scale.	**06**
	(b)	Write a short note on buffered isotonic solutions.	**05**
	(c)	Explain: Universal indicator, buffer, buffer capacity, ampholyte, osmosis	**05**

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