Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.PHARM – SEMESTER –3 EXAMINATION – SUMMER-2024

Subject Code: BP302TP Date: 11/06/2024

Subject Name: Physical Pharmaceutics I

Time: 02.30 p.m. to 5.30 p.m. 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 interfacial tension. Discuss in detail DuNouy Ring Method.	**06**
	(b)	Write a note on Hydrophilic-lipophilic balance (HLB).	**05**
	(c)	Explain the formation of electric double layer with a neat labelled diagram.	**05**
Q.2	**(a)**	Explain Henry's law and factors affecting for solubility of gases in liquids.	**06**
	(b)	Define solubility. Describe the solute - solvent interactions that influence the solubility of drugs in liquids.	**05**
	(c)	Define Raoult's law. What is the significance of positive and negative deviation from Raoult's law on solubility?	**05**
Q.3	**(a)**	State & explain Nernst's distribution law with its limitation and application.	**06**
	(b)	Enlist various methods for transport of drug across GIT. Discuss in detail passive diffusion.	**05**
	(c)	Define adsorption isotherm. State Freundlich adsorption equation and plot.	**05**
Q.4	**(a)**	Write a brief note on polymorphism with its application.	**06**
	(b)	Define ideal gases and real gases. Explain ideal gas equation with its application.	**05**
	(c)	Define the followings: Boiling point, Critical temperature, Isomorphism, Phase, Critical solution temperature.	**05**
Q.5	**(a)**	Explain the principle and method of Claude's process for liquefaction of gases.	**06**
	(b)	Explain with the help of suitable example how drug protein binding influences the pharmacokinetics, pharmacodynamics and drug action in various ways.	**05**
	(c)	Write a detail note on inclusion complexes.	**05**
Q. 6	**(a)**	Define and classify the complexation. Write in detail about "chelates".	**06**
	(b)	Write a note on spreading coefficient.	**05**
	(c)	Discuss in detail common ion effect and the buffer equation for a weak acid and its salt.	**05**
Q.7	**(a)**	Describe Sorensen's pH scale. Write applications of buffers in pharmacy.	**06**
	(b)	Enlist various methods to adjust tonicity. Describe freezing point depression method for adjusting the tonicity of a solution	**05**
	(c)	Write a short note on "Buffer Capacity"	**05**

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