

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.PHARM - SEMESTER-3 EXAMINATION – WINTER -2024**

**Subject Code:BP302TP**

**Date: 21-12-2024**

**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.**

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|-------------|---|-----------|
| <b>Q.1</b>  | (a) What is real solution? Explain in brief about Raoult's law.   | <b>06</b> |
|             | (b) Define & explain solubility. Discuss different solubility expressions.  | <b>05</b> |
|             | (c) Describe factors affecting on solubility of drugs.  | <b>05</b> |
| <b>Q.2</b>  | (a) Explain the terms: latent heat, vapour pressure, sublimation critical point, eutectic mixtures, liquid crystals and amorphous solids. | <b>06</b> |
|             | (b) Explain the terms: Refractive index, optical rotation and dielectric constant.  | <b>05</b> |
|             | (c) Explain the terms: dipole moment and dissociation constant.   | <b>05</b> |
| <b>Q.3</b>  | (a) What is surface tension. Explain different methods to determine surface tension with help of diagram and equations.                   | <b>06</b> |
|             | (b) Define HLB. Describe HLB scale in detail.   | <b>05</b> |
|             | (c) Write short note on spreading co-efficient.   | <b>05</b> |
| <b>Q.4</b>  | (a) Define and classify complexation with suitable examples. Give its pharmaceutical applications   | <b>06</b> |
|             | (b) Explain methods of analysis of complexes  | <b>05</b> |
|             | (c) Write a note on protein binding   | <b>05</b> |
| <b>Q.5</b>  | (a) What is buffer capacity? Describe applications of buffer in Pharmacy.   | <b>06</b> |
|             | (b) Describe Sorensen's pH scale.   | <b>05</b> |
|             | (c) Describe methods used to determine tonicity of solution.  | <b>05</b> |
| <b>Q. 6</b> | (a) Explain upper consolute temperature. Explain graphical method with help of suitable example.  | <b>06</b> |
|             | (b) Write a note on solubility of gas in liquids.   | <b>05</b> |
|             | (c) Explain aerosols  | <b>05</b> |
| <b>Q.7</b>  | (a) Explain changes in state of matter  | <b>06</b> |
|             | (b) What is CMC? Discuss pharmaceutical applications of CMC.  | <b>05</b> |
|             | (c) Explain drug-cyclodextrin complex with mechanism and applications.  | <b>05</b> |

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