

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

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

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BPHARM – SEMESTER II • EXAMINATION – SUMMER • 2014**

**Subject code: 2220002**

**Date: 30-05-2014**

**Subject Name: Pharmaceutical Chemistry-II(Physical Chemistry)**

**Time: 02:30 pm - 05:30 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) Write a note on Freundlich and Gibbs adsorption isotherms. **06**  
(b) Define Adsorption isotherm. Explain Langmuir adsorption isotherm with limitation. **05**  
(c) Discuss pharmaceutical applications of adsorption. **05**
- Q.2** (a) What is a catalyst? Explain homogeneous and heterogeneous catalysts with characteristics. **06**  
(b) Discuss the basic principles of followings **05**  
(i) Order of reaction and Molecularity of reaction (ii) Adsorption and Adsorption  
(c) Write a note on Collision theory for reaction rates. **05**
- Q.3** (a) What is Photochemistry? Draw the Jablonski diagram and explain the Consequences of light absorption. **06**  
(b) Explain “Beer’s Lambert’s law of photochemistry”. **05**  
(c) Write a note on Quantum efficiency. **05**
- Q.4** (a) Define the following terms with example:(any four) **06**  
(i) Surface tension (ii) Viscosity (iii) Refractive index  
(iv) Optical rotation (v) Dipole moment  
(b) Explain principle of Oswald’s Viscometer. **05**  
(c) Write a note on “Acid- Base Enzyme Catalysis”. **05**
- Q.5** (a) Explain in detail Entropy and Enthalpy. **06**  
(b) Write a note on Debye-Huckel theory **05**  
(c) What is Raoult’s law? Describe the deviations from Raoult’s law. **05**
- Q. 6** (a) Explain First Law of Thermodynamics. **06**  
(b) Explain the order of reaction. Derive an equation for first order kinetic. **05**  
(c) State and explain the following Laws. **05**  
(i) Henry’s Law (ii) Zeroth Law of Thermodynamics
- Q.7** (a) Write a note on One and two component systems. **06**  
(b) Write a note on Phase rule. **05**  
(c) Write a note on ‘The Carnot Cycle’. **05**

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