

GUJARAT TECHNOLOGICAL UNIVERSITY**BPHARM – SEMESTER I • EXAMINATION – SUMMER - 2013****Subject code: 220003****Date: 31-05-2013****Subject Name: Pharm. Chemistry II****Time: 02:30 pm to 05:30 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) State and explain first law of thermodynamics. Write in brief about various types of thermodynamic processes. **06**
(b) Write a note on carnot cycle. **05**
(c) Define the following terms: **05**
(1) Surface tension (2) Viscosity (3) Parachor (4) Optical rotation (5) Colligative properties
- Q.2** (a) Define the following terms: **06**
(1) Heat of formation (2) Heat of combustion (3) Molar heat capacity
(b) Describe Kirchoff's law in detail. **05**
(c) Write a note on Joule Thomson effect. **05**
- Q.3** (a) What is phase rule? Discuss water system with reference to phase rule. **06**
(b) State and explain Henry's law **05**
(c) Write in detail factors affecting viscosity. **05**
- Q.4** (a) Derive the rate constant equation for first order reaction. Explain how to derive half-life equation for first order reaction. **06**
(b) Write the difference between order of reaction and molecularity of reaction. **05**
(c) What is Raoult's law? Describe the deviations from Raoult's law. **05**
- Q.5** (a) Enlist the laws of photochemistry. Describe any one in detail. **06**
(b) Define quantum yield of a photochemical reaction giving reasons of high and low quantum yield. **05**
(c) Write a note on Debye-Huckel theory. **05**
- Q.6** (a) What is adsorption? Explain Langmuir's adsorption isotherm in detail. **06**
(b) State the application of adsorption. **05**
(c) Define normality and molarity. Calculate the normality of a solution containing 35 gms of oxalic acid (molecular weight = 126) dissolved in 500 ml of solution. **05**
- Q.7** (a) What is radioactivity? What are the different types of radiations emitted by radioactive substances. Explain it in detail. **06**
(b) Write a note on Geiger-Müller counter. **05**
(c) State the applications of radioactivity. **05**
