

GUJARAT TECHNOLOGICAL UNIVERSITY

BPHARM – SEMESTER II • EXAMINATION – SUMMER • 2015

Subject code: 2220002

Date: 04-06-2015

Subject Name: Pharmaceutical Chemistry - II (Physical Chemistry)

Time: 10:30 am - 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) State and explain Raoult's law of dilute solution. Discuss deviation of real solution from the Law. **06**
(b) Define Colligative property. Enlist different types of colligative properties. Describe briefly lowering of the Vapour pressure. **05**
(c) Write note on Debye–Huckel theory. **05**
- Q.2** (a) What is surface tension? Discuss the measurement of surface tension by drop formation method. **06**
(b) Explain: (i) Dipole moment (ii) Specific rotation (iii) Refractive index **05**
(c) Define viscosity & write units of it. Describe principle of Ostwald's viscometer. **05**
- Q.3** (a) Explain: Quantum efficiency, Florescence, Photochemical reactions. **06**
(b) Discuss consequences of light absorption by matter. Give applications of photochemistry in pharmacy. **05**
(c) State and explain Lambert – Beer law. **05**
- Q.4** (a) What do you mean by partition coefficient? How it is useful in pharmacy? State and explain distribution law. **06**
(b) Explain the terms (i) Heat of Formation and Heat of solution (ii) Entropy and Enthalpy. **05**
(c) Differentiate the following: (i) Isothermal and adiabatic process (ii) Reversible and irreversible process. **05**
- Q.5** (a) Explain: Equivalence conductance, Molarity and molality, Phase rule. **06**
(b) What is adsorption? Discuss applications of adsorption in pharmacy. **05**
(c) Write a note on Langmuir Adsorption isotherms. **05**
- Q. 6** (a) Write a detail note on First law of thermodynamics. **06**
(b) What is the basic principle of Joule –Thomson effect? **05**
(c) Write a note on methods for determination of order of reaction. **05**
- Q.7** (a) Explain “Activation energy” of a chemical reaction. Describe effects of temperature on Rate of reaction. **06**
(b) What is catalytic reaction? Write a note on Collision theory for reaction rates. **05**
(c) Derive reaction rate constant, half life of first order reaction kinetics. **05**
