

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm – SEMESTER II • EXAMINATION – WINTER - 2016

Subject Code: 2220002**Date: 06/01/2017****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) What is adsorption? Derive the equation for Langmuir's adsorption isotherm. **06**
(b) Enumerate the pharmaceutical application of Adsorption in pharmacy. Discuss any two. **05**
(c) Differentiate physical and chemical adsorption. **05**
- Q.2** (a) State and explain Henry's Law. Enlist its limitations **06**
(b) Define Quantum efficiency. Discuss causes of high quantum yield with suitable examples. **05**
(c) Write a note on 'The Carnot Cycle'. **05**
- Q.3** (a) Define: Parachor. Explain its applications in elucidating structure. **06**
(b) State first law of thermodynamics. Derive the equation $C_p - C_v = R$ **05**
(c) Explain Jablonski diagram. **05**
- Q.4** (a) Explain, giving examples: Additive, Constitutive and Colligative properties. **06**
(b) What do you mean by partition coefficient, freezing point depression and conductance? How they are useful in pharmacy? **05**
(c) Give differences between ideal and real solutions. **05**
- Q.5** (a) What is order of reaction? Derive reaction rate constant, half life reaction for First order reaction. **06**
(b) Give the detail application of Radiopharmaceuticals in pharmacy. **05**
(c) Discuss the characteristics of Homogeneous and Heterogeneous catalysis. **05**
- Q. 6** (a) Discuss different methods to determine order of a reaction. **06**
(b) Discuss different types of radiation with its properties. **05**
(c) Define: Viscosity and fluidity. What are its units? Explain determination of coefficient of viscosity for a liquid using Ostwald's viscometer. **05**
- Q.7** (a) Define: Fluorescence, Phosphorescence and Chemiluminescence. **06**
(b) Explain the laws of Photochemistry. **05**
(c) Differentiate the following: (i) Isothermal and adiabatic process (ii) Reversible and irreversible process. **05**
