

GUJARAT TECHNOLOGICAL UNIVERSITY
BPHARM – SEMESTER II • EXAMINATION – WINTER • 2016

Subject code: 220003**Date: 06-01-2017****Subject Name: Pharmaceutical Chemistry - II****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 order of reaction? Derive the rate constant equation for first order reaction. Explain how to derive half-life equation for first order reaction. **06**
- (b) Define the term Catalyst. Write a note on “Acid- Base Enzyme Catalysis”. **05**
- (c) Degradation of Paracetamol follows first order kinetic with half life 230 days. Concentration on today is 100mg. When it become less than 80mg. it is not safe for human use. Calculate expiry date in days and months. **05**
- Q.2** (a) Explain the following terms: **06**
1. Photochemistry 2. Joule-Thomson effect 3. Fluorescence
 4. Thermopile 5. Enthalpy 6. Zeroth Law of Thermodynamics
- (b) Define quantum yield of a photochemical reactions giving reasons of high and low quantum yield. **05**
- (c) Draw the Jablonski diagram & explain the Consequences of light absorption. **05**
- Q.3** (a) Write a detail note on Carnot cycle. **06**
- (b) What is phase rule? Describe the phase diagram of water. **05**
- (c) What is thermochemistry? How enthalpy of a chemical reaction can be calculated? **05**
- Q.4** (a) Derive Langmuir adsorption isotherm equation. Discuss behaviour of Langmuir adsorption isotherm at very low and very high pressure. **06**
- (b) Enlist applications of adsorption. Describe in detail pharmaceutical application. **05**
- (c) Difference between adsorption and absorption. **05**
- Q.5** (a) Define the following terms: **06**
1. Surface tension 2. Viscosity 3. Parachor 4. Optical rotation
 5. Refractive index 6. Specific conductance
- (b) Write a note on Debye-Huckle theory. **05**
- (c) What is Raoult’s law? Describe the deviations from raoult’s law. **05**
- Q. 6** (a) Differentiate between the followings. **06**
1. Ideal solution & Real solution
 2. Homogeneous & Heterogeneous catalysts
 3. α -rays & γ -rays
- (b) Write a note on Geiger- muller counter. **05**
- (c) What is radioactivity? State the applications of radioactivity. **05**
- Q.7** (a) Discuss the methods of determination of order of a reaction. **06**
- (b) Write a short note on First law of thermodynamics. **05**
- (c) Explain Freundlich and Gibbs adsorption isotherom. **05**