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.**

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|---|---|---|---|
| **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<br>(i) Order of reaction and Molecularity of reaction (ii) Absorption and Adsorption | **05** |
| | **(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)<br>(i) Surface tension (ii)Viscosity (iii) Refractive index<br>(iv) Optical rotation (v) Dipole moment | **06** |
| | **(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-Huckle 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.<br>(i) Henry’s Law (ii) Zeroth Law of Thermodynamics | **05** |
| **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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