Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BPHARM – SEMESTER II • EXAMINATION – SUMMER • 2014

Subject code: 220003 **Date: 30-05-2014**

Subject Name: Pharm Chemistry II

Time: 02:30 pm to 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) Explain following terms: (Any Six) **06**

1. Adsorption
2. Parachore
3. Radioactivity
4. Phosphorescence
5. Dipole moment
6. Optical rotation
7. Conductance

(b) State and explain Henry's law. **05**

(c) Differentiate following: 1. Homogeneous and Heterogeneous catalysis **05**
2. First order reaction and second order reaction

Q.2 (a) Explain Langmuir and Gibb's adsorption isotherm. **06**

(b) Discuss pharmaceutical applications of adsorption. **05**

(c) Write a note on Geiger-Muller Counter and Scintillation Counter. **05**

Q.3 (a) Explain Phase diagram of 1 component and 3 phase system. **06**

(b) Write a note on Carnot cycle. **05**

(c) The heat of combustion of carbon monoxide at constant volume and at 17^0C is -283.3 kJ. Calculate its heat of combustion at constant pressure. (R=8.314 J degree^{-1}mole^{-1}) **05**

$CO_{(g)} + ½ O_{2(g)} \longrightarrow CO_{2(g)}$

Q.4 (a) Explain following terms giving suitable examples. (Any three) **06**

1. Enthalpy
2. Entropy
3. Adiabatic process
4. Joule Thomson effect

(b) Write pharmaceutical applications of photochemistry. **05**

(c) Differentiate: Ideal solution and real solution. **05**

Q.5 (a) Define refractive index. How it is determined? Discuss pharmaceutical applications of refractive index. **06**

(b) 50% of a first order reaction is complete in 23 minutes. Calculate the time required to complete 90% of the reaction. **05**

(c) Define "Viscosity coefficient". Explain principle of ostwald's viscometer. **05**

Q. 6 (a) Draw Jablonski diagram. State Beer's law of photometry. Calculate absorbance corresponding to 0, 10 & 100% transmission. **06**

(b) Explain : Partition coefficient and freezing point depression with suitable example. **05**

(c) Write about various methods for the estimation of surface tension. **05**

Q.7 (a) Enlist various methods for determination of order of kinetics. Discuss any two methods. **06**

(b) Write about Debye-Huckle theory. **05**

(c) Explain characteristics of Enzyme catalysis. **05**

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