Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharmacy Sem-II Remedial Examination September 2009

Subject code: 220003 Subject Name: Pharm Chemistry II

Date: 08/09/2009 Time: 10:30am-1:30pm

Total Marks: 80

Instructions:

1. Write seat no. and enrolment no. at given location on question paper.
2. Attempt any five questions.
3. Make suitable assumptions wherever necessary.
4. Figures to the right indicate full marks.

Q.1 Answer the followings

(a) What is surface tension? Derive equation to determine Surface tension by capillary rise method. **06**

(b) Define Refractive Index. How is it determined? Give its applications. **06**

(c) Define the terms: **04**

(i) Specific Optical Rotation (ii) Partition-coefficient

(iii) Reverse Osmosis (iv)Activation Energy

Q.2 Answer the followings

(a) State and explain Raoult's law for dilute solution. Discuss deviations of real solution from the Raoult's law. **06**

(b) The osmotic pressure of a solution containing 1.0 gram of purified hemoglobin in 50 ml of water is 5.40 mm of Hg at 25 degree centigrade. What is the molecular weight of hemoglobin? R= 0.0821 L. atm. / mole/ K. **06**

(c) An aqueous solution freezes at –3.07 °C. At what temperature will this solution boil? (water K_f =1.86, kb=0.51) **04**

Q.3 Answer the followings

(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. **06**

(c) Differentiate physical and chemical adsorption. **04**

Q.4 Answer the followings

(a) Explain order of reaction and derive equation of first order kinetic. Give characteristic of first order kinetics. **06**

(b) Syrup contained 500 mgs of drug / ml when prepared and after 30 days was found to contain 400 mgs/ ml. The drug was decomposed by first order kinetic. What is half life of drug? **06**

(c) Out line importance of Rate process in pharmacy. **04**

Q.5 Answer the followings

(a) Define specific conductivity and equivalent conductivity. Write note on Debye-Huckel theory. **06**

	(b)	Compare properties of Radioactive Rays.	**06**
	(c)	What are the methods of Measurements of Radioactivity? Discuss any one method.	**04**
Q. 6		Answer the followings	
	(a)	Draw Jablonski diagram .State Beer's Law of photometry. Calculate absorbance corresponding to 0, 10 and 100 % transmission.	**06**
	(b)	Explain the term phase, component, and degree of freedom with illustration State and explain phase rule.	**06**
	(c)	Discuss phase diagram of system containing phenol-water.	**04**
Q.7		Answer the followings	
	(a)	Explain the terms (i) Heat of Formation (ii) Heat of solution (iii) Heat of fusion (iv) Heat of Neutralization	**06**
	(b)	Explain term; Free energy, Lattice energy and Entropy. Discuss application of the thermodynamics in" solubility of solid in liquid".	**06**
	(c)	The standard Heat of formation of $C_2H_5OH_{(l)}$, $CO_{2(g)}$ and $H_2O_{(l)}$ are -277.0 , -393.5 & -285.5 KJ /mol respectively. Calculate heat of combustion of ethanol.	**04**

$$C_2H_5OH_{(l)} + 3O_{2(g)} \longrightarrow 2CO2_{(g)} + 3H2O_{(l)}$$

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