GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharmacy Sem-II Examination June 2010

Subjec Date:	ct code: 17 / 06	220003 Subject Name: Pharm Chem / 2010 Time: 02.30 pm – 05.30 pm Total Marks: 80	Subject Name: Pharm 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)	Define the term 'Viscosity Coefficient'. Describe Ostwald's viscometer method for determining it.	05		
	(b)	Define: Parachor. Explain its applications in elucidating structure.	07		
	(c)	Define: Molar Refraction. Describe Abbe Refractometer.	04		
Q.2					
	(a)	State and explain Henry's Law. Enlist its limitations.	06		
	(b)	Derive a relation for the depression of freezing point of a solution with its molality.	04		
	(c)	What is conductance ? Discuss Debye-Huckel theory.	06		
Q.3					
	(a)	State first law of thermodynamics. Derive the equation $C_p - C_v = R$	04		
	(b)	Write a note on 'The Carnot Cycle'.	05		
	(c)	Explain phase rule with the meaning of the terms involved in it.	05		
	(d)	Explain the following:	02		
		1) Entropy 2) Joule-Thomson effect			
Q.4					
	(a)	What is an adsorption isotherm ? Discuss, in detail, Langmuir adsorption isotherm.	07		
	(b)	Differentiate between physical adsorption and chemisorption.	03		
	(c)	Explain the any four characteristics of enzyme catalysis.	06		
Q.5					
	(a)	State & explain Lambert- Beer law of Photochemistry.	04		
	(b)	Define Quantum efficiency. Discuss causes of high quantum yield with suitable examples.	05		
	(c)	Explain Jablonski diagram.	04		
	(d)	Explain the following:	03		
		1) Fluorescence 2) Phosphorescence 3) Thermopile			

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Q. 6			
	(a)	Enlist various methods for determination of order of reaction.	08
		Discuss any two methods.	
	(b)	The reaction between methane and diatomic sulphur is given by the	04
		following equation:	
		$CH_{4(g)} + 2S_{2(g)} \rightarrow CS_{2(g)}$	
		The rate constant for this reaction at 550 C and 625 C temperatures	
		is 1.1 lit.mol ⁻¹ and 6.4 lit.mol ⁻¹ respectively. Calculate E_a for the	
		reaction. ($R = 8.3145 \text{ J. K}^{-1} \text{ . mol}^{-1}$)	
	(c)	What is order of reaction ? Derive integrated rate equation for first order reaction.	04
Q. 7			
-	(a)	Define: Radioactivity. Enlist methods for measurement of	07
		radioactivity. Discuss any one in detail.	
	(b)	Compare properties of α , β , and γ radiations.	03
	(c)	The heat of combustion of ethanol is -330.0 kcal. If the heat of	04
		formation of $CO_{2(g)}$ and $H_2O_{(l)}$ be -94.3 kcal and -68.5 kcal	
		respectively, calculate the heat of formation of ethanol.	
	(d)	Why are high molecularity reactions rare ? – Explain.	02

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