Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. – SEMESTER II • EXAMINATION – WINTER 2015

Subject Code: 220003 **Date: 15/12/2015**

Subject Name: Pharmaceutical Chemistry-II

Time: 2.30 pm to 5.30 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 surface tension? Discuss different techniques to determine surface tension.	**06**
	(b)	Write note on Dipole moment.	**05**
	(c)	(i) What is half life? Show that half life of first order reaction is independent of concentration.	**03**
		(ii) Compound A decomposes to B and the reaction is first order. The rate constant for the reaction is 0.5 s^{-1}. What is the half life of compound A?	**02**
Q.2	(a)	Explain molecularity of a reaction and order of a reaction. Derive equation for rate constant of first order reaction.	**06**
	(b)	Explain following terms: (i) Viscosity (ii) Parachor (iii) Molar refraction (iv) autocatalytic reaction (v) Heterogenous catalysis	**05**
	(c)	What are different types of catalysis? Discuss characteristics of catalytic reactions.	**05**
Q.3	(a)	Discuss different methods to determine order of a reaction.	**06**
	(b)	Write note on Enzyme catalysis and acid-base catalysis.	**05**
	(c)	Explain in detail enthalpy of the system & molar heat capacity.	**05**
Q.4	(a)	Discuss the assumption of Langmuir adsorption isotherm and derive the equation.	**06**
	(b)	What is physical adsorption and Chemisorption? Discuss difference between both.	**05**
	(c)	Write note on Jablonski diagram.	**05**
Q.5	(a)	Define quantum yield of photochemical reaction. Explain why high and low quantum yield results in a photochemical reaction.	**06**
	(b)	Define thermodynamics. Explain first law of thermodynamics.	**05**
	(c)	Explain Einstein's law of photochemical equivalence	**05**
Q. 6	(a)	Discuss different types of radiation with its properties.	**06**
	(b)	What are colligative properties? Discuss different methods to determine depression of freezing point.	**05**
	(c)	What is Phase rule? Discuss water system with reference to phase rule.	**05**
Q.7	(a)	Explain Raoult's law, Ideal solution and Real solution. Derive equation for Raoult's law.	**06**
	(b)	Write note on Henry's law and its limitations.	**05**
	(c)	Derive Kirchoff's equation.	**05**

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