Seat No.: _____

Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

	B. Pharm. – SEMESTER II • EXAMINATION – WINTER 2015 Subject Code: 2220002 Date: 15/12/2015 Subject Name: Pharmaceutical Chemistry-II (Physical Chemistry)		
	Time	: 2.30 pm to 5.30 pm Total Marks: 80	0
	Instru	ctions:	
	1.	Attempt any five questions.	
	2.	Make suitable assumptions wherever necessary.	
	3.	Figures to the right indicate full marks.	
Q.1	(a)	Describe different methods to determine the order of reaction in brief.	06
	(b)	Define order of reaction and molecularity. Explain difference between molecularity of	05
		the reaction and order of the reaction	
	(c)	The half life of a substance in a first order reaction is 258 seconds. How long it will take	05
		for the reaction to be completed 75%?	
Q.2	(a)	Explain the collision theory with its limitations.	06
	(b)	Define following (Any five)	05
		1) Chemical kinetics. 2) Pseudo order reaction. 3) Half life of reaction	
		4) Activation energy. 5) Rate of reaction 6) Homogeneous catalyst	
	(c)	In a first order reaction, the concentration of reactant decrease from 0.06 to 0.04 litre ⁻¹	05
		and this requires 45 minutes, what will be the half life period of this reaction ?	
Q.3	(a)	Define quantum efficiency. Explain in detail causes of high & low quantum yield with	06
		examples.	- -
	(b)	Draw Jablonski diagram. State and explain Lambert- Beer law of Photochemistry	05
	(c)	Define following (Any five)	05
		1) Chemiluminescence 2) Fluorescence. 3) Photochemistry () A diabatic measure	
		4) Phosphorescence. 5) Thermophe 6) Adiabatic process	
Q.4	(a)	Define adsortion isotherm. Write a note on Langmuir adsorption isotherm.	06
	(b)	Compare physical adsorption and chemisorption. Describe applications of adsorption.	05
	(c)	Define Joule-Thomson coefficient. Write a note on Joule-Thomson effect.	05
Q.5	(a)	Explain the phase diagram of one component and three phase system.	06
	(b)	Define Thermodynamics and explain first law of thermodynamics.	05
	(c)	Define enthalpy. How enthalpy of a chemical reaction can be calculated?	05
O. 6	(a)	Explain in brief i) Colligative properties ii) Partition co-efficient.	06
C	(b)	Discuss Debye-Huckel theory in detail	05
	(c)	Define molarity, molality, normality. Explain Henry's law in short.	05
Q. 7	(a)	Enlist methods employed for determination of surface tension. Explain any two in detail.	06
	(b)	Write a note on Parachlor.	05
	(c)	Define following (Any five)	05
	(0)	1) Viscosity 2) Refractive index. 3) Molar refraction 4) Vapour Pressure	
		5) Optical activity 6) Specific rotation 7) Boiling Point	
