Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm-Semester-III Summer-12 Examination

Subject code: 230001

Subject Name: Physical Pharmaceutics-II

Time: 2:30pm to 5:30pm **Date: 08-05-2012**

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)**	Derive an equation to show that the half life is independent of the concentration, in a first order reaction.	**06**
	(b)	Describe the factors which govern the rate of a chemical reaction.	**05**
	(c)	Write four applications of drug-protein binding in drug activity.	**05**
Q.2	**(a)**	Classify organic molecular complexes. Describe drug and caffeine complexes.	**06**
	(b)	Define complex compounds. Describe chelate type of complexes.	**05**
	(c)	Describe the type-I dissolution apparatus with labeled diagram.	**05**
Q.3	**(a)**	Explain Noyes-Whitney's equation for the rate of dissolution.	**06**
	(b)	Describe the influences of temperature and dielectric constant on reaction rates.	**05**
	(c)	Define steady state, Fick's first law and sink condition. Explain immediate drug release and extended drug release.	**05**
Q.4	**(a)**	Describe the four colligative properties of nonelectrolytes in solution.	**06**
	(b)	Explain Arrhenius theory of electrolytic dissociation.	**05**
	(c)	Describe properties of solutions of electrolytes.	**05**
Q.5	**(a)**	Define ideal and real solutions using Raoult and Henry's laws. Describe molecular determination using colligative properties.	**06**
	(b)	Write on coefficients for expressing colligative properties.	**05**
	(c)	Give the pharmaceutical applications of polymers.	**05**
Q.6	**(a)**	Describe the methods of characterization of polymers.	**06**
	(b)	What are the limitations of accelerated stability studies?	**05**
	(c)	The half life of a drug that decomposes by first order is 55 days calculate K1 and self life (t90)	**05**
Q.7	**(a)**	How decomposition of medicinal agents affect on stability. Explain with examples.	**06**
	(b)	Define and classify the polymers.	**05**
	(c)	An aqueous solution of ferrous sulfate was prepared by adding 41.50gm of FeSO4 to enough water to make 1000ml of solution at 18oC. The density of a solution is 1.0375 and molecular weight of FeSO4 is 151.9. Calculate a) Molarity b) the mole fraction of FeSO4	**05**

****