

**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 $K_1$ and self life ( $t_{90}$ )	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 $FeSO_4$ to enough water to make 1000ml of solution at 18°C. The density of a solution is 1.0375 and molecular weight of $FeSO_4$ is 151.9. Calculate a) Molarity b) the mole fraction of $FeSO_4$	05

\*\*\*\*\*