Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. – SEMESTER – III • EXAMINATION – SUMMER • 2014

Subject Code: 230001 Date: 03-06-2014

Subject Name: Physical Pharmaceutics-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: Electrolytes and nonelctrolytes.	**02**
	(b)	What are colligative properties? Describe boiling point elevation.	**04**
	(c)	Explain Raoult's Law. Calculate the total vapor pressure of benzene-carbon tetrachloride solution for which the mole fraction of carbon tetrachloride is 0.10 at 50 ^{o}C. The vapor pressures of pure benzene and pure carbon tetrachloride at 50 ^{o}C are 268 and 308 Torr.	**05**
	(d)	Define freezing point depression. A solution containing 0.10 g of an unknown solute in 10 g of benzene has a freezing point (T_f) of 5.10 ^{o}C. Calculate the molecular weight (MW) of the unknown solute. K_f for benzene is 5.12 ^{o}C Kg/mole and T^{o}_f = 5.51 ^{o}C for benzene.	**05**
Q.2	(a)	Differentiate: Strong and weak electrolytes.	**02**
	(b)	Describe osmotic pressure as a colligative property.	**04**
	(c)	Discuss Arrhenius theory of electrolytic dissociation.	**05**
	(d)	Discuss ideal and real solutions with suitable examples.	**05**
Q.3	(a)	Explain: Kinetics and rate of reaction.	**02**
	(b)	Enlist the factors affecting reaction rate. Describe the effect of temperature.	**04**
	(c)	Define order of reaction. Describe methods used to determine the same.	**05**
	(d)	Describe the various drug decomposition pathways with remedial measures.	**05**
Q.4	(a)	Explain: Complexation.	**02**
	(b)	Give detailed classification of complexes.	**04**
	(c)	Discuss the applications of complexation in pharmacy.	**05**
	(d)	Write note on protein binding.	**05**
Q.5	(a)	Explain: Polymer.	**02**
	(b)	Give detailed classification of polymers.	**04**
	(c)	Describe pharmaceutical applications of polymers.	**05**
	(d)	Write note on characterization of polymers.	**05**
Q. 6	(a)	Explain: Diffusion.	**02**
	(b)	What is dissolution? Discuss its significance in drug therapy.	**04**
	(c)	Describe the method for studying in vitro drug diffusion.	**05**
	(d)	Describe in vitro dissolution test apparatus as per Indian Pharmacopoeia.	**05**
Q. 7	(a)	Explain ICH. Describe ICH guidelines for accelerated stability testing.	**02**
	(b)	Give brief account on synthetic polymers used in pharmacy.	**04**
	(c)	Describe Debye-Heckel theory for strong electrolytes.	**05**
	(d)	Discuss coefficients for expressing colligative properties.	**05**

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