GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharmacy Sem-III Examination December 2009
Subject code: 230001   Subject Name: Physical Pharmaceutics II
Date:15 / 12 / 2009   Time: 12.00- 3.00pm
Instructions: Total Marks: 80
1. Attempt **any five** questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1	**(a)**	Enlist different methods to determine Molecular weight of non electrolytes solutions. Explain any one method in detail.	**06**
	(b)	State Raoult's law. Explain in details about positive and negative deviations from Raoult's law.	**05**
	(c)	Define Molality and Normality. What are colligative properties? State the Henry's law.	**05**
Q.2	**(a)**	Explain the theory of strong electrolytes.	**06**
	(b)	Define electric current. Explain electrolysis in an electrolytic cell.	**05**
	(c)	Describe the Arrhenius's theory of electrolytic dissociation.	**05**
Q.3	**(a)**	Derive the equation for the second order of reaction (a = b and a ≠b).	**06**
	(b)	Enlist different factors affect the rate of reaction. Discuss in details the effect of temperature on it.	**05**
	(c)	Write a short note on Accelerated stability study.	**05**
Q.4	**(a)**	Derive the equation for protein binding to draw *Scatchard plot* with its limitations.	**06**
	(b)	Write a short note on chelates and polymer complexes.	**05**
	(c)	What are different methods to determine the order of a reaction? Discuss the half life method in detail.	**05**
Q.5	**(a)**	Elaborate the different applications of polymers in pharmaceutical field.	**06**
	(b)	How to characterize polymers? Explain with different methods.	**05**
	(c)	Enlist any two synthetic polymers. Discuss any two general properties of polymer solutions.	**05**
Q. 6	**(a)**	Explain in details "Noyes-Whitney" equation for dissolution.	**06**
	(b)	What is flux? Explain Fick's first law of diffusion.	**05**
	(c)	What is dissolution? Explain dissolution apparatus as per USP method I.	**05**

Q.7 **(a)** Comment on   **06**
  i)   Expiry date and shelf life is same.
  ii) Dissolution rate is increased with increase the rate of stirring.
  iii) Diffusion across the membrane depends on concentration of drug.

(b) $CH_3COOC_2H_5 + NaOH \rightarrow CH_3COONa + C_2H_5OH$ **05**
The initial concentrations of both the substances in the mixture= 0.02 M.
The change in concentration of alkali during 20 min. = 0.000283 mole/liter.
Calculate
 i) Rate constant and ii) $t_{1/2}$ of the reaction.

(c) Write a short note on Diffusion Cells.   **05**

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