Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharmacy Sem-III Regular / Remedial Examination Dec. 2010

Subject code:230001 **Subject Name: Physical Pharmaceutics II**

Date: 11 /12 /2010 **Time: 10.30 am – 01.30 pm**

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) How many ways to express the concentration of solution ? Explain Raoult's Law ? **06**

(b) What is number fo equivalents per mole of K_3PO_4 ? What is equivalent weight of this salt ? What is equivalent weight of KNO_3 ? What is number equivalence per mole of $Ca_3(PO_4)_2$ and what is equivalent weight of this salt ? **05**

(c) Enlist the colligative properties of solution of Non-Electrolyte. Explain theory of Van't Hoff equation for osmotic pressure. **05**

Q.2 (a) What is Faraday's Law – Explain ? **06**

(b) Explain Arrhenius theory of electrolytic dissociation ? **05**

(c) What is ionic strength of 0.010 M KCl, 0.010 M $BaSO_4$, and 0.10 M Na_2SO_4. What is ionic strength of a solution containing all three electrolyte together with Salicylic acid in 0.010 M concentration in aqueous solution ? **05**

Calculate mean ionic activity co-efficient for 0.0005 M atropine sulfate (1:2 electrolyte) in aqueous solution containing 0.01 M NaCl at 25^0 C. Because the drug is anti-bivalant electrolyte $z_1z_2 = 1x2 = 2$. For water at 25^0 C., A is 0.51

Q.3 (a) How the conductance of the solution can be measured – Explain using wheatstone bridge fro conductance measurement ? **06**

(b) How the order of reaction can be determine ? Explain second order of reaction using suitable example ? **05**

(c) Define Shelf life and Half life ? **05**

There is saponification of ethyle acetate at 25^0 C.

$CH_3COOC_2H_4 + NaOH \rightarrow CH_3COONa + C_2H_5OH$.

The initial concentration of both ethyle acetate and sodium hydroxide in mixture were 0.01000 M. The change in concentration x of alkali during 20 min. was 0.00566 mole/liter. So (a-x) = 0.01000 – 0.00566 = 0.00434. Compute the Rate Constant and Half Life of Reaction

Q.4 (a) What is effect of dielectric constant on rate constat ? **06**

(b) How Pharmaceutical decomposition affect on stability of drugs. Explain with example ? **05**

(c) Classify the complexes and explain importance of chelates in metal ion complexes ? **05**

Q.5 (a) Which are the factors affecting complexsation and protein binding ? **06**

(b) Which are the techniques used to determine the amount of drug bound to protein. Explain any one ? **05**

(c) Write the pharmaceutical applications of polymers ? **05**

Q. 6 (a) What is Hydrogels. Classify and explain its role in drug delivery system ? **06**

(b) Explain Fick's Law of Diffusion and what do you mean by steady state ? **05**

(c) Which are the factors affecting Diffusion? – Explain them. **05**

Q.7 (a) What is Porosity and Tortuosity – Explain in detail ? **06**

(b) Explain Higuchi Equation (Model) for studying the release of water soluble drugs ? **05**

(c) What is role of Dissolution Test in Pharmaceutical Industry ? **05**

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