

UKA TARSADIA UNIVERSITY**Maliba Pharmacy College**B. Pharm 2nd Semester Internal Examination April 2013**030020401 - Physical Pharmacy-II**

Time: 10:00 a.m. To 1:00 p.m.

Max. Marks: **70**

Date: 29/04/2013

Instructions:

- Question no. **1 is compulsory.**
- From Q.2 to Q.7 attempt any **four** questions.
- Make suitable assumption whenever necessary.
- Figures to the right indicate full marks.

- Q.1** (a) Answer the following: (any six) **06**
- 1 What is Higuchi model?
 - 2 What is Brownian movement?
 - 3 Write the disadvantages of HLB scale.
 - 4 Define surface tension and state its units.
 - 5 State Bancroft's rule.
 - 6 Define wetting.
 - 7 Define molecularity of the reaction
 - 8 Mention Hixson-Crowell cube root law and explain the terms.
- (b) Describe in brief: (any four) **08**
- 1 Classify Dispersion systems according to particle size. Give suitable examples.
 - 2 Why Combination of tween 40 and span 80 gives stronger interfacial film in o/w emulsion?
 - 3 Define zeta potential. How it is different from Nernst potential?
 - 4 Differentiate Chelates and metal ion complexes.
 - 5 Comment –In the formation of inorganic metal complexes the classical theory of hybridization does not apply. True or False justify.
 - 6 Why suspensions follow zero order drug release?
- Q.2** (a) Write a note on association colloids. **04**
- (b) Discuss optical properties of colloids. **05**
- (c) Explain DLVO theory. **05**
- Q.3** (a) Consider an o/w emulsion containing mineral oil with specific gravity 0.9 dispersed in aqueous phase having specific gravity 1.05. If the oil particles have an average diameter of 5 μ m, the external phase has a viscosity of 0.5 poise. What is the velocity of creaming in cm per day **04**
- (b) Discuss the approaches used in formulation of pharmaceutical suspensions. **05**
- (c) Explain monomolecular adsorption phenomenon of emulsification. **05**
- Q.4** (a) Write applications of complexation with examples. **04**
- (b) Explain the pH titration method for analysis of complexes. **05**
- (c) Discuss in detail the metal ion complexes with its types and examples. **05**
- Q.5** (a) Write a short note on detergency. **04**
- (b) Define adsorption isotherms and explain different types of adsorption isotherms. **05**
- (c) Drive the equation of spreading co-efficient and mention its importance. **05**

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- Q.6** (a) Derive the equation for first order reaction. Also deduce first order rate constant and half life. **04**
- (b) Explain the methods to determine the order of reaction. **05**
- (c) The catalytic decomposition of hydrogen peroxide can be followed by measuring the volume of oxygen liberates in gas burette. From such an experiment, it was found that the concentration of hydrogen peroxide remaining after 65 min, expressed as the volume in milliliters of gas evolved, was 9.60 from an initial concentration of 57.90. **05**
- (a) Calculate K
- (b) How much hydrogen peroxide remained undecomposed after 25 minutes
- Q.7** (a) Write a brief note on Steady state and sink condition. **04**
- (b) What is diffusion? State Fick's first and second law of diffusion. **05**
- (c) Describe U.S.P type I dissolution apparatus with a labeled diagram. **05**