UKA TARSADIA UNIVERSITY

B.Pharm. (4th Semester)

Subject :030020401-Physical Pharmacy II

Time : 10:00 am to 1:00 pm Date : 29/11/2013

Duration : 3 Hours **Max. Marks : 70.**

Instructions:

1. Attempt all questions.
2. Write each section in a separate answer book.
3. Make suitable assumptions wherever necessary.
4. Figures to the right indicate full marks allocated to that question.
5. Draw diagrams/figures whenever necessary.

SECTION – 1

Q-1 (A) Do as directed. **[07]**

I) Write the difference between complex and molecular compound.

II) Define gold number.

III) Write the limitation of Stokes law.

IV) What is critical micelle concentration?

V) Define co-ordination number.

VI) State Bancroft's rule.

VII) What is degree of flocculation?

Q-1 (B) Answer the following in brief. (Any 4) **[08]**

I) Differentiate between flocculated and deflocculated suspensions.

II) Comment- In the formation of inorganic meta complexes, the classical theory of hybridization does not apply. Why?

III) Write about protective colloidal action of colloids.

IV) Comment –When a structured vehicle is added to a flocculated suspension, the sedimentation volume (F) is increased. True or false. Justify.

V) Why Combination of tween 40 and span 80 gives stronger interfacial film in o/w emulsion?

VI) Discuss Quinhydrone complexes.

Q-2 Answer the following. **[10]**

A) Describe the process of micellar solubilization. Explain its application in pharmacy with suitable example.

OR

A) What is meant by physical instability in emulsion? Explain creaming and flocculation.

B) Write applications of complexation with examples.

OR

B) Explain controlled flocculation with labeled diagram.

Q-3 Answer the following in detail. (Any 2) **[10]**

A) Enlist all the kinetic properties of colloids and discuss two of them in detail.

B) Write short note on following 1- Factors influencing settling rate.
2- Solubility method for complex analysis with example.

C) Explain DLVO theory.

SECTION – 2

Q-4 (A) Do as directed. **[07]**

I) Define zeta potential.

II) What is sink condition?

III) Write Hixson Crowell equation and explain the terms.

IV) Differentiate between molecularity and order of chemical reaction.

V) Define surface tension.

VI) Write applications of spreading coefficient.

VII) What is surface free energy?

Q-4 (B) Answer the following in brief. (Any 4) **[08]**

I) Differentiate between physical and chemical adsorption.

II) Write the applications of diffusion.

III) Discuss Noyes Whitney's equation.

IV) Comment- Saponification method can be used to determine the HLB value of sodium lauryl sulfate. True or False. Explain.

V) Give the reason for the capillary rise of water, when capillary is placed a in beaker of water.

VI) Define pseudo first order reaction with two examples.

Q-5 Answer the following. **[10]**

A) Discuss in detail the concept of electrical double layer.

OR

A) Discuss applications of adsorption at solid/liquid interface.

B) Describe the diffusion controlled release of matrix type with examples.

OR

B) Write about Langmuir adsorption isotherm.

Q-6 Answer the following in detail. (Any 2) **[10]**

A) Discuss wetting and detergency phenomenon in detail.

B) Explain any two factors influencing the drug dissolution that are related to apparatus and test parameters.

C) Write short note on following I- U.S.P Type II dissolution apparatus
II- Half life method for order determination.