

GUJARAT TECHNOLOGICAL UNIVERSITY**BPHARM – SEMESTER II • EXAMINATION – WINTER • 2014****Subject code: 2220001****Date: 10-12-2014****Subject Name: Physical Pharmacy****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) Write about the Nernst and Zeta potential and give its importance in pharmaceutical systems. **06**
 (b) Discuss the Viscoelasticity in detail. **05**
 (c) Explain Non Newtonian flow with rheogram, mechanism and Explain with suitable example. **05**
- Q.2** (a) Explain Sedimentation Parameter of suspension in detail. **06**
 (b) Explain the concept of DLVO theory along with energy curve and how this theory is applied in stabilizing the colloidal Dispersion. **05**
 (c) Write mechanism and applications of drug – caffeine complexes. **05**
- Q.3** (a) Enlist the different type of densities of powder. Write the experimental method for the determination of any one of them. **06**
 (b) Classify the methods use for determination of surface area. Explain air permeability method in detail with diagram. **05**
 (c) Describe Stoichiometric ratio in the analysis of Complexation. Describe one method for the determination of the same. **05**
- Q.4** (a) How will you determine the Rheological Properties? Explain Cup and bob Viscometer in detail. **06**
 (b) Classify the method of liquefaction of gases and Explain Linde's method in detail. **05**
 (c) Write note on Thixotropy. **05**
- Q.5** (a) Describe the Process of micelle Solubilization. Explain its application in pharmacy with suitable example. **06**
 (b) Discuss the Capillary rise method for measurement of Surface Tension. **05**
 (c) Explain the physical instability of emulsion. **05**
- Q. 6** (a) Derive the equation for protein binding to draw Scatchard plot with its limitations. **06**
 (b) Give distribution of substances undergoing ionic dissociation and ionic association. **05**
 (c) Write a note on Solute solvent Interaction. **05**
- Q.7** (a) Explain HLB value. Describe the method of calculation of HLB by different technique. **06**
 (b) Write a note on lyophilization technique in detail. **05**
 (c) Explain the structure properties and significant of liquid crystals. **05**