

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BPHARM – SEMESTER II • EXAMINATION – SUMMER • 2014**

**Subject code: 220006**

**Date: 06-06-2014**

**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) Classify complexes and write on metal complexes in detail. **06**  
(b) Differentiate between channel lattice type and clathrates complexes. **05**  
(c) Enumerate methods of analysis for complexes. Write on pH titration method. **05**
- Q.2** (a) Write in brief on any two: **06**  
i) Protein binding ii) Pharmaceutical application of colloids iii) Association colloids  
(b) What are kinetic properties of colloids? **05**  
(c) Explain electrical properties of colloids. **05**
- Q.3** (a) Write on: **06**  
i) Particle and particle size distribution ii) Number and weight distribution  
(b) Explain derived properties of powders. **05**  
(c) Give in brief methods to determine particle shape and surface area. **05**
- Q.4** (a) Give Newton's law of flow. Define kinematic viscosity. Give relation between temperature effect on viscosity of liquids. **06**  
(b) Write briefly on any one: i) Plastic Flow ii) Pseudoplastic Flow iii) Dilatant Flow **05**  
(c) Write on Thixotropy, measurement of thixotropy and its applications in pharmaceutical formulations. **05**
- Q.5** (a) Write in short on any one: **06**  
i) Sedimentation of flocculated particles  
ii) Difference between flocculated and deflocculated suspensions.  
iii) Formulation of suspensions.  
(b) Give types, applications and preservation of emulsions. **05**  
(c) Write on Rheological properties of emulsions. **05**
- Q.6** (a) Write in brief on (any two): **06**  
1. Spreading Coefficient 2. CMC 3. Surface Active Agents  
4. Systems of HLB classification  
(b) Write on: Surface and interfacial tensions and techniques of their measurement. Write in brief on Surface Free Energy. **05**  
(c) Write in details on: Physical Stability of emulsions. **05**
- Q.7** (a) Explain Liquefaction of gases and Methods of achieving liquefaction. Give application of this phenomenon in Pharmacy. **06**  
(b) Explain the following( any one): **05**  
i) Crystalline solids ii) Polymorphisms iii) Amorphous solids  
(c) Discuss 2 component systems containing liquid phases or Ternary systems with one pair of partially miscible liquids. **05**

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