Seat No.: _____ Enrolment No. _____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**B.Pharm - SEMESTER– II • EXAMINATION – SUMMER 2017**

**Subject Code: 220006** **Date: 15/06/2017**

**Subject Name: Physical Pharmacy**

**Time: 10:30 AM to 01:30 PM** **Total Marks: 80**

**Instructions:**

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

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|---|---|---|---|
| **Q.1** | (a) | Classify interfaces, show that surface tension is a force per unit length and also as surface free energy change per unit area increase. | **06** |
| | (b) | Enumerate methods to determine surface and interfacial tensions. | **05** |
| | (c) | Give applications of spreading coefficient. | **05** |
| **Q.2** | (a) | Compare the properties of colloidal sols. | **06** |
| | (b) | Write in brief on (any one): (i) ultra-centrifuge, (ii) wetting (iii)adsorption at solid interfaces | **05** |
| | (c) | Write on stability of colloidal systems. | **05** |
| **Q.3** | (a) | Write on importance of the following (any one): (i) particle size distribution,(ii) number and weight distribution. | **06** |
| | (b) | Explain in brief methods to determine particle size. | **05** |
| | (c) | Enumerate derived properties of powders. | **05** |
| **Q.4** | (a) | Explain Newtonian law of flow. | **06** |
| | (b) | Discuss the temperature dependence of viscosity of liquids. | **05** |
| | (c) | How does thixotrophy differ from non Newtonian systems? Give applications of rheology. | **05** |
| **Q.5** | (a) | Differentiate between flocculated and deflocculated systems. | **06** |
| | (b) | Write on significance of sedimentation parameters. | **05** |
| | (c) | Write in brief on any one: (i) controlled flocculation, (ii) techniques of suspension preparation. | **05** |
| **Q. 6** | (a) | Give crystalline states of solids | **06** |
| | (b) | Write in short on any one: (i) x-ray diffraction, (ii) polymorphism, (iii) properties of liquid crystals. | **05** |
| | (c) | Write on liquefaction of gases. | **05** |
| **Q.7** | (a) | How is measurement of isotonicity done? | **06** |
| | (b) | Write in brief on any one: (i) cosolvence, (ii) effect of pH on solubility, (iii) partition coefficient | **05** |
| | (c) | Write on theories of emulsification. | **05** |

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