Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

## B.PHARM – SEMESTER – II • EXAMINATION – WINTER • 2015

**Subject Code: 2220001** **Date: 21-12-2015**

**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.**

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|---|---|---|---|
| **Q.1** | **(a)** | Write a note on binding forces between molecules. | **06** |
| | **(b)** | Explain Phase equillibria for system containing two components. | **05** |
| | **(c)** | Define: Angle of repose. Describe Angle of repose and write relationship with powder flow. | **05** |
| **Q.2** | **(a)** | Define solubility. Describe the influence of surfactants on solubility. | **06** |
| | **(b)** | Discuss factor influencing solubility of gases in liquid. | **05** |
| | **(c)** | Give general principles of Solubility. | **05** |
| **Q.3** | **(a)** | Write electric properties of interfaces (Solid/liquid) and give its importance in pharmaceutical systems. | **06** |
| | **(b)** | What is spreading coefficient? Derive its equation. | **05** |
| | **(c)** | What is surface tension? And write unit. Write a note on surface active agents | **05** |
| **Q.4** | **(a)** | Write note on metal complexes. | **06** |
| | **(b)** | Enumerate method use for determination of protein binding. Write in detail all. | **05** |
| | **(c)** | Enumerate various properties of colloids. Explain in detail optical properties. | **05** |
| **Q.5** | **(a)** | Explain protective colloidal action in detail. | **06** |
| | **(b)** | Write a note on Controlled Flocculation. | **05** |
| | **(c)** | Discuss physical instability of emulsion. | **05** |
| **Q. 6** | **(a)** | Enlist the methods for particle size determination. Write in detail any two. | **06** |
| | **(b)** | Enumerate the derived properties of powder. How are they evaluated? | **05** |
| | **(c)** | Explain the methods for determining surface area. | **05** |
| **Q.7** | **(a)** | Describe thixotropy and negative thixotropy. How to evaluated thixotropy? | **06** |
| | **(b)** | Explain Non Newtonian fluids with examples. | **05** |
| | **(c)** | In calibrating the cup and bob combination of Stormer viscometer a National Bureau of standards. Newtonian oil with a viscosity of 200. Poises at 20 °C was used. With a weight of 2400 g on weight hanger, the bob rotated at 600 rpm. a) Compute the instrumental constant $K_v$. And following data were collected a sample of white petrolatum was analyzed in a Stormer viscometer: $w$ = 1800g, $w_f$ = 1420g, $v$ = 500 rpm and instrumental constant $K_v$ as per calibration of instrumental. b) What is the plastic viscosity in poises of this sample? | **05** |

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