

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

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

## GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharmacy Sem-II examination June 2009

Subject code: 220006

Date: 15/06/2009

Subject Name: Physical Pharmacy

Time: 11:30am-2:30pm

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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|-------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Q.1</b>  | (a) | Define Polymorphism. Discuss the significance of Polymorphism in Pharmacy with example.                                                                                                                                                                                                                                                                  | <b>06</b> |
|             | (b) | Discuss the two component systems containing solid and liquid Phases.                                                                                                                                                                                                                                                                                    | <b>06</b> |
|             | (c) | Write a note on liquid Crystals.                                                                                                                                                                                                                                                                                                                         | <b>04</b> |
| <b>Q.2</b>  | (a) | What is Buffer capacity? How it is calculated?                                                                                                                                                                                                                                                                                                           | <b>07</b> |
|             | (b) | Write a note on Pharmaceutical Buffer.                                                                                                                                                                                                                                                                                                                   | <b>05</b> |
|             | (c) | Calculate the pH of 0.02 M Ba(OH) <sub>2</sub> .                                                                                                                                                                                                                                                                                                         | <b>04</b> |
| <b>Q.3</b>  | (a) | Write in detailed note on Non-Newtonian systems.                                                                                                                                                                                                                                                                                                         | <b>05</b> |
|             | (b) | Classify various viscometers. Describe two viscometer with diagram to find out viscosity of Non-Newtonian fluids.                                                                                                                                                                                                                                        | <b>06</b> |
|             | (c) | What a note on : Plastic and Pseudoplastic flow.                                                                                                                                                                                                                                                                                                         | <b>05</b> |
| <b>Q.4</b>  | (a) | Differentiate various types of colloidal dispersion system and give the application of colloids in pharmacy.                                                                                                                                                                                                                                             | <b>07</b> |
|             | (b) | Define Suspension. Write a note on factors affecting stability of Suspension.                                                                                                                                                                                                                                                                            | <b>05</b> |
|             | (c) | Discuss the instability of emulsions.                                                                                                                                                                                                                                                                                                                    | <b>04</b> |
| <b>Q.5</b>  | (a) | Discuss the method of determining the particle volume in detail.                                                                                                                                                                                                                                                                                         | <b>06</b> |
|             | (b) | Discuss the porosity and Kelvin equation with their significance in pharmacy.                                                                                                                                                                                                                                                                            | <b>06</b> |
|             | (c) | A sample of calcium carbonate having density 2.8 g/cm <sup>3</sup> , allow to settle under acceleration of gravity ( $g_c = 980 \text{ cm/sec}$ ) the rate of setting ( $v$ ) is $14.6 \times 10^{-3} \text{ cm/sec}$ , the density ( $\rho$ ) of water is $1.00 \text{ g/cm}^3$ and viscosity ( $\eta$ ) is 0.01 poise. Calculate the Stoke's Diameter. | <b>04</b> |
| <b>Q. 6</b> | (a) | Explain the Surface and Interfacial tensions.                                                                                                                                                                                                                                                                                                            | <b>05</b> |
|             | (b) | What is spreading Coefficient? Derive its equation.                                                                                                                                                                                                                                                                                                      | <b>06</b> |
|             | (c) | Describe the method of calculation of HLB by different techniques.                                                                                                                                                                                                                                                                                       | <b>05</b> |
| <b>Q.7</b>  | (a) | Write a note on solubility of gases in liquid.                                                                                                                                                                                                                                                                                                           | <b>05</b> |
|             | (b) | Write a note on law of distribution.                                                                                                                                                                                                                                                                                                                     | <b>06</b> |
|             | (c) | Write a note on physical stability of emulsion.                                                                                                                                                                                                                                                                                                          | <b>05</b> |

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