

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**B. Pharmacy Sem-I Examination January 2010****Subject code: 210005****Subject Name: Pharmaceutics I****Date: 06 / 01 / 2010****Time: 12.00 – 3.00 pm****Instructions:****Total Marks: 80**

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

- Q.1** (a) Comment: Viscosity of slurry is an important factor in rate of filtration. **02**
 (b) Discuss the various mechanisms of filtration process. **04**
 (c) Describe rotary drum filter with diagram. **05**
 (d) Calculate the compressibility exponent of a cake based on following experimental filtration data: **05**

| Pressure difference (lbf/inch ²) | Specific cake resistance [(lbf(h))/(lb)(ft)] |
|--|--|
| 2 | 3.1 |
| 5 | 3.9 |

- Q.2** (a) Explain: Centrifugal effect with equation. **02**
 (b) Write note on Metafilter. **04**
 (c) Describe contineous centrifuge with diagram. **05**
 (d) Discuss the principle of tubular bowl centrifuge with diagram. **05**
- Q.3** (a) Comment: Evaporation under reduced pressure should be used with caution. **02**
 (b) Discuss Duhring's rule and Raoult's law. **04**
 (c) Describe short tube evaporator with diagram. **05**
 (d) Discuss principle, advantages and disadvantages of film evaporators. **05**
- Q.4** (a) Explain: HETP and HTU. **02**
 (b) Differentiate: Evaporation and Distillation. **04**
 (c) Describe the steam distillation process. **05**
 (d) A 100 mole of liquid mixture containing 0.20 and 0.80 mole fraction of components A and B, respectively was subjected to simple batch distillation. What will be the liquid composition after 8 mole of component A has been removed with the vapors? Assume α_{ab} as constant at 1.414. **05**
- Q.5** (a) Explain: CMC and EMC. **02**
 (b) Describe fluidized bad dryer with diagram. **04**
 (c) Discuss the process of spray drying. **05**
 (d) The wet solid containing 3 lb of water/lb of dry solid and with a density of 50 lb/ft³ was subjected to a drying using 4 ft long and 3 ft wide trays with wet solid depth of 2 inch. Calculate the number of trays required to obtain 3000 lb of a product containing 1 lb of water/lb of dry solid. **05**
- Q. 6** (a) Explain: Humidification and dehumidification. **02**
 (b) Discuss applications of humidity control in pharmacy. **04**
 (c) Draw a labeled diagram of humidifier with essential components. **05**
 (d) Describe compression refrigeration cycle with diagram. **05**
- Q. 7** (a) Explain: Rectification and reflux ratio. **02**
 (b) Write note on azeotropic distillation. **04**
 (c) Describe mechanical hygrometers with diagram. **05**
 (d) Discuss principle, advantages and disadvantages of freeze drying. **05**
