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 **05**
                 filtration data:

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   **05**
                 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.

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/ft^3 **05**
                 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.
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**

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