

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. - SEMESTER– IV• EXAMINATION – SUMMER 2016

Subject Code: 2240001

Date: 30/05/2016

Subject Name: Unit Operations- II

Time: 10:30 AM to 1:30 PM

Total Marks: 80

Instructions:

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

- Q.1** (a) Describe the construction and working of meta filter. **06**
(b) Discuss the various mechanisms of filtration process. **05**
(c) Write in detail the factors affecting rate of filtration. **05**
- Q.2** (a) Classify industrial centrifuges. Write the construction and working of a perforated basket centrifuge. **06**
(b) Give the principle and theory of centrifugation. **05**
(c) Justify comment. **05**
1. Separation in centrifuge is based on the difference in densities.
2. Azeotropic mixture of Ethanol and Water cannot be separated by simple distillation process.
- Q.3** (a) Draw the drying rate curve and explain the different stages in drying of solids. **06**
(b) What is Lyophilisation? Explain in brief equipment used for lyophilization. **05**
(c) 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 air. **05**
- Q.4** (a) Explain HETP and reflux ratio. Explain in detail about rectification. **06**
(b) Enumerate different types of distillation. Describe applications of each of them. **05**
(c) Explain process of distillation of immiscible liquids. **05**
- Q.5** (a) Discuss principle, advantages disadvantages and working of film evaporators. **06**
(b) Describe the factors affecting rate of evaporation. **05**
(c) Discuss Duhring's rule and Raoult's law. **05**
- Q.6** (a) Select most appropriate drying equipment for production of milk powder. Describe its principle, working, advantage and disadvantages. **06**
(b) Explain the term "Refrigerant". Enumerate ideal properties of refrigerant. **05**
(c) Define the terms Humidity, Dew point, humid volume, Humid heat and DBT. **05**
- Q.7** (a) How is humidity measured? Give its application in pharmacy. **06**
(b) Explain plate and frame filter in detail. **05**
(c) Explain in detail fluidized bed dryer. **05**
