

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

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

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.Pharm – SEMESTER 4 – EXAMINATION – WINTER -2018****Subject Code: 2240001****Date: 06/12/2018****Subject Name: Unit Operations-II****Time: 02.30 PM to 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.

- Q.1** (a) Define Distillation. Describe steam distillation with labeled diagram. 06  
(b) Define: HETP. Discuss packed columns with respect to Fractional distillation. 05  
(c) Describe the method of drying rate calculation. 05
- Q.2** (a) Explain plate and frame filter press with labeled diagram in detail with advantages and disadvantages. 06  
(b) Explain the psychrometric chart. 05  
(c) Define: HVAC. Give its application in Pharmacy. 05
- Q.3** (a) Write a note on McCabe Thiele method for calculation of theoretical plates. 06  
(b) Explain Raoult's law and Duhring's Rule for evaporation. 05  
(c) What is Lyophilisation? Explain in brief any one equipment used for lyophilization. 05
- Q.4** (a) Define 'azeotropes'. Write a note on preparation of Absolute alcohol. 06  
(b) Define filter aid. Write ideal characteristics of filter aid used in filtration. 05  
(c) Explain any two methods to determine humidity. 05
- Q.5** (a) Define centrifugation. Explain theory of centrifugation 06  
(b) Discuss in detail continuous horizontal centrifuge with labeled diagram. 05  
(c) Explain in detail edge-filter. 05
- Q.6** (a) Define the terms Humidity, Dew point, humid volume, Humid heat, WBT and DBT. 06  
(b) Explain process of distillation of immiscible liquids. 05  
(c) Explain stages involved in rotary drum filter with labeled diagram. 05
- Q.7** (a) Define drying. Write a note on tray dryer. 06  
(b) Explain climbing film evaporator. 05  
(c) Define "Refrigerant". Enumerate ideal properties of refrigerant. 05

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