

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/ft ³ 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
