Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.PHARM - SEMESTER– 4 EXAMINATION – WINTER -2019

Subject Code: 2240001 **Date: 18-12-2019**

Subject Name: Unit Operations-II

Time: 02:30 AM 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)**	Write a note on factors affecting filtration.	**06**
	(b)	What are the advantages and disadvantages of centrifugal sedimenters? Discuss its application in pharmacy.	**05**
	(c)	Compare and contrast filtration, centrifugation and distillation.	**05**
Q.2	**(a)**	Explain plate and frame filter press with suitable diagram.	**06**
	(b)	Discuss mechanisms of filtration in detail.	**05**
	(c)	Define filter aid. Discuss compressible and non-compressible cakes.	**05**
Q.3	**(a)**	Explain principle, diagram, construction, working, advantages and disadvantages and uses of a spray dryer.	**06**
	(b)	Define EMC, CMC and FMC. What is bound moisture?	**05**
	(c)	Classify dryers used in pharmacy. Write a note on any one type of convection dryer.	**05**
Q.4	**(a)**	Write a note on molecular distillation process.	**06**
	(b)	Discuss different types of fractionating column.	**05**
	(c)	Define volatility. What is relative volatility and derive equation for it.	**05**
Q.5	**(a)**	Explain factors affecting evaporation	**06**
	(b)	What is first and second falling rate period in drying?	**05**
	(c)	What is reflux ratio and total reflux? What is the relationship between reflux ratio and the distillate product?	**05**
Q. 6	**(a)**	Classify evaporators based on form of movement with suitable examples for each class. Discuss any one in detail with diagram.	**06**
	(b)	Discuss the laws used to determine boiling point rise due to material in solution	**05**
	(c)	Define economy of an evaporator. What is a multiple effect evaporator?	**05**
Q.7	**(a)**	Write a note on psychrometric chart.	**06**
	(b)	Discuss applications of HVAC system in pharmacy	**05**
	(c)	Define Dew point, Wet bulb temperature, Humidity, Humid heat and Refrigerant	**05**

****