

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. – SEMESTER – I (OLD Syllabus) • EXAMINATION – SUMMER • 2015

Subject Code: 210005

Date: 05-06-2015

Subject Name: Pharmaceutics-I

Time: 02:30 pm - 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) Differentiate: Filtration and Clarification. Discuss Darcy's Law for filtration process. **06**

(b) Describe meta filter with diagram. **05**

(c) Calculate the compressibility exponent of a cake based on following experimental filtration data: **05**

Pressure difference (lbf/inch ²)	Specific cake resistance [(lbf(h))/(lb)(ft)]
3	2.8
6	3.6

Q.2 (a) Derive the equation for centrifugal effect (CE). Discuss the applications of centrifugal operations in pharmacy. **06**

(b) Describe perforated basket centrifuge with diagram. **05**

(c) Write note on filter press. **05**

Q.3 (a) Comment: Evaporation under reduced pressure is always advantageous. Discuss BPR and Raoult's law. **06**

(b) Describe multiple effect evaporation. **05**

(c) Discuss principle, advantages and disadvantages of film evaporators. **05**

Q.4 (a) Explain: Evaporation and Distillation. Describe the rectification process. **06**

(b) Describe the steam distillation process. **05**

(c) A liquid mixture of ethanol and water is in equilibrium with vapor containing ethanol and water at a total pressure of 760 mmHg. A sample of vapor indicates that it contains 4.5 moles of ethanol for every 2.5 moles of water. If the liquid has a mole fraction of 0.62 ethyl alcohol, what is the relative volatility for the mixture? **05**

Q.5 (a) Explain: LOD and EMC. Describe the drying curve with various phases. **06**

(b) Discuss the process of spray drying. **05**

(c) Paracetamol granules containing 80 lb of water/ 100 lb of dry granules are being dried in a drier. Granules dry at a constant rate of 5 lb water/ lb granules per hr to 50 % moisture content and then at a rate which is proportional to moisture content. Calculate the time required to reach a water content of 1% considering EMC as zero. **05**

Q. 6	(a) Explain: WBT and DBT. Discuss applications of humidity control in pharmacy.	06
	(b) Describe absorption refrigeration cycle with diagram.	05
	(c) Draw a labeled diagram of humidifier with essential components.	05
Q. 7	(a) Explain: HETP and reflux ratio. Write note on extractive distillation.	06
	(b) Describe mechanical hygrometers with diagram.	05
	(c) Discuss principle, advantages and disadvantages of lyophilization.	05
