Seat No.:	Enrolment No.

## GUJARAT TECHNOLOGICAL UNIVERSITY

B.Pharm - SEMESTER-I • EXAMINATION - SUMMER-2017

Subject Code: 210004 Date: 30/05/2017

**Subject Name: Pharmaceutical Engineering** 

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 the following terms: (i) Unit operations (ii) Dimensional equation. Give the importance of pharmaceutical engineering in the field of pharmacy.	06
	<b>(b)</b>	List the unit operations & unit processes. Write the SI units for mass, length, time, temperature, heat & force.	05
(	<b>(c)</b>	Write a short note on different types of graphical representations.	05
Q.2	(a)	Define and explain following terms giving appropriate examples. (1) Stoichiometry (2) Unit operation (3) Tie substance	06
	(b) (c)	Discuss Dalton's law, Amagat's law and their corollary. Write a brief note on material and energy balance.	05 05
Q.3	(a) (b)	Describe total mechanical energy balance.  Give Reynold's equation. Why it is dimensionless, prove it and mention	06 05
	(c)	significance of Reynold's number. Differentiate (1) Orifice meter and Venturimeter. (2) Stream line and Turbulent flow.	05
Q.4	(a) (b)	Classify transport systems for solid. Explain belt conveyor. Explain Piston Pump.	06 05
	<b>(c)</b>	Describe pneumatic conveyors with its diagram.	05
Q.5	(a)	What is thermal radiation? Explain the concept of Black body and Gray body in thermal radiation.	06
	(b) (c)	What is conduction? Give Fourrier's law and derive its equation. Explain briefly Bucket type steam trap.	05 05
Q. 6	(a)	Discuss the principle involved in mass transfer. Enumerate unit operations in which mass transfer operation is involved.	06
	(b) (c)	Write a short note: Steam as Heating media Classify heat exchange equipment. Discuss construction and working of single pass tubular heatexchanger.	05 05
Q.7	(a) (b)	Discuss the theory of corrosion. Describe the importance of corrosion. Discuss various factors affecting on selection of materials for plant construction.	06 05
	(c)	Discuss advantages and limitations of different kind of plastics used in Pharmaceutical industry.	05

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