Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. – SEMESTER – I • EXAMINATION – SUMMER 2013

Subject Code: 210004 Date: 11-05-2013

Subject Name: Pharmaceutical Engineering

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)	Explain unit operation, unit processes and tie-substance.	**06**
	(b)	Define stoichiometry. Discuss its significance in pharmacy.	**05**
	(c)	Write a note on material balance-tie substances.	**05**
Q.2	(a)	Write a note on different types of graphs.	**06**
	(b)	Write in brief on material balance and energy balance.	**05**
	(c)	Describe total mechanical energy balance.	**05**
Q.3	(a)	Describe principle and working of rotameter with labeled diagram.	**06**
	(b)	Differentiate ventury meter and orifice meter.	**05**
	(c)	Give Reynold's equation. Why it is dimensionless, prove it and mention significance of Reynold's number.	**05**
Q.4	(a)	What is conduction? Give Fourrier's law and derive its equation.	**06**
	(b)	Define radiation and Black body. Explain Stephen Boltzmann law for black body.	**05**
	(c)	Write a note on steam traps.	**05**
Q.5	(a)	Classify different types of valve. Explain globe valve with suitable diagram.	**06**
	(b)	Write a note on centrifugal pump with suitable diagram.	**05**
	(c)	Write a note on pneumatic conveyer.	**05**
Q. 6	(a)	Discuss the various factors affecting selection of material of plant construction	**06**
	(b)	Discuss various ways for prevention and control of corrosion in industry.	**05**
	(c)	Discuss the principle involved in mass transfer. Enumerate unit operations in which mass transfer operation is involved.	**05**
Q.7	(a)	Enlist different types of conveyor. Write in details with a diagram on belt conveyer.	**06**
	(b)	Derive the equation for the rate of heat transfer when the resistances are in series.	**05**
	(c)	A salt solution originally contains 4% by weight NaCl in water is evaporated to 5% by weight NaCl. (NaCl is a tie substance.) (a) What percentage of water evaporated? (b)What is the reduction in original solution?	**05**

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