Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. Semester - IST Examination –July- 2011

Subject code: 210004

Subject Name: Pharmaceutical Engineering

Date:11/07/2011 **Time: 10:30 am – 01:30 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)**	Discuss principle, construction, working, advantages, disadvantages and application of Rotameter.	**06**
	(b)	Discuss U-tube manometer in details.	**05**
	(c)	What is friction? Enlist various types of friction losses and discuss any one in details.	**05**
Q.2	**(a)**	Discuss Dimensional Analysis in details.	**06**
	(b)	Differentiate between unit operation and unit processes.	**05**
	(c)	Write a brief note on material and energy balance.	**05**
Q.3	**(a)**	Define stoichiometry. Discuss its significance in Pharmacy.	**06**
	(b)	Write a note on tie-substance.	**05**
	(c)	Differentiate between steady state and unsteady state.	**05**
Q.4	**(a)**	Draw a neat and clean diagram of Globe Valve and describe it.	**06**
	(b)	Describe belt conveyor.	**05**
	(c)	Classify the solid transport system.	**05**
Q.5	**(a)**	Discuss various factors affecting selection of material of plant construction.	**06**
	(b)	Classify materials used for pharmaceutical plant construction.	**05**
	(c)	Discuss any one theory of corrosion.	**05**
Q. 6	**(a)**	Write Fourier's law. Derive an equation for rate of heat transfer when the resistances are in series.	**06**
	(b)	Define the Black Body and explain Stephen Boltzmann law for black body.	**05**
	(c)	Enlist various advantages of steam as a heating medium.	**05**
Q.7	**(a)**	Describe influences of mass transfer on unit operations.	**06**
	(b)	Write a note on Heat Exchanger.	**05**
	(c)	Enlist various applications of heat transfer in industrial process.	**05**

****