

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm. – SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject Code: 210004

Date: 18-06-2014

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)	Define stoichiometry. Discuss its significance in pharmacy.	06
	(b)	Discuss Dimensional Analysis, its advantages and disadvantages.	05
	(c)	Write a brief note on material and energy balance.	05
Q.2	(a)	Discuss principle, construction, working, advantages and disadvantages of rotameter.	06
	(b)	Compare and contrast Venturimeter and orificemeter.	05
	(c)	What is friction? Enlist various types of friction losses and discuss any one of them.	05
Q.3	(a)	Define corrosion. Classify the types of corrosion. How will you prevent galvanic corrosion?	06
	(b)	Enlist the factors influencing the selection of materials for pharmaceutical plant construction.	05
	(c)	Discuss advantages and limitations of different kind of plastics used in pharmaceutical industry.	05
Q.4	(a)	Classify the transportation system for solids. Discuss belt conveyor.	06
	(b)	Write in detail a pump used for sterile product filling.	05
	(c)	Enumerate different types of valves. Describe gate valve.	05
Q.5	(a)	Write a Fourier's Law. Derive equation for rate of heat transfer when the resistances are in series.	06
	(b)	Write a short note on modes of heat transfers.	05
	(c)	Write a short note on black body and explain stephen boltzman law for black body.	05
Q. 6	(a)	What are the differences between pipes and tubing?	06
	(b)	Explain Dalton's Law and Amagat's Law.	05
	(c)	Classify heat exchangers and write any one in detail.	05
Q.7	(a)	Define and explain following: (i) Unit operations (ii) Unit processes (iii) Tie-substance.	06
	(b)	A mercury manometer is connected across the venturimeter. The pressure on up stream side(P_1) 0.4 kg/cm ² gauge. The manometer reading is (ΔP) is 70mm.Hg. Fluid flowing is water. Calculate the pressure at throat (P_2). Density of water is 1 gm/cm ³ and density of mercury is 13.6 gm/cm ³ .	05
	(c)	Write a short note on solid/fluid mass transfer	05
