Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. – SEMESTER – III • EXAMINATION – WINTER • 2014

Subject Code: 2230002 **Date: 20-12-2014**

Subject Name: Pharmaceutical Engineering

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)**	Define and explain the terms with appropriate example i) Dimensional analysis ii) Dimensional formulae	**06**
	(b)	Write a short note on different types of graphical presentation.	**05**
	(c)	Calculate the mass of oxygen obtained by the complete decomposition of 20 gram of Potassium chlorate. (K= 39.1; Cl = 35.5; O = 16)	**05**
Q.2	**(a)**	Describe Reynold's classic experiment elucidating different types of flows through a closed channel.	**06**
	(b)	Derive out the Bernoullis's equation with proper assumption.	**05**
	(c)	Define and explain the terms with appropriate example i) Valve ii) Flow meters	**05**
Q.3	**(a)**	Derive an equation for heat transfer by conduction through compound resistance in a series.	**06**
	(b)	Write a short note on different modes of heat transfer	**05**
	(c)	Define and explain the terms with appropriate example i) Heat exchanger ii) Black body	**05**
Q.4	**(a)**	Write principle, working, construction and application of rotameter.	**06**
	(b)	Write a note on Fick's law of mass transfer.	**05**
	(c)	Derive an equation for overall heat transfer coefficient.	**05**
Q.5	**(a)**	Write a short note on following i) Color code for piping system in industry ii) Gate valve	**06**
	(b)	Describe construction working and advantage of belt conveyor with a neat sketch.	**05**
	(c)	Enumerate different types of interplant transportation. Enlist the factors which influence the selection of type of transportation.	**05**
Q. 6	**(a)**	Discuss the factors affecting selection of materials for the construction of pharmaceutical plant.	**06**
	(b)	Discuss the theory of corrosion. Describe the importance of corrosion.	**05**
	(c)	Write a short note on stainless steel as a material of construction.	**05**
Q.7	**(a)**	Write a note on store design in pharmaceutical industry.	**06**
	(b)	Differentiate between orifice and venturimeter.	**05**
	(c)	Write a note on solid/fluid mass transfer.	**05**

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