Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.Ph.- SEMESTER– III• EXAMINATION – WINTER -2021

Subject Code:2230002 Date: 23/02/2022

Subject Name: PHARMACEUTICAL ENGINEERING

Time: 10:30 AM to 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)**	What are applications of pharmaceutical engineering?	**06**
	(b)	Write a note on belt conveyer	**05**
	(c)	Describe different types of graphical presentation	**05**
Q.2	**(a)**	Classify manometer. Discuss U-tube manometer in detail.	**06**
	(b)	Write a note on steam as a heating medium	**05**
	(c)	Write in brief on material balance.	**05**
Q.3	**(a)**	Describe orifice meter with labelled diagram.	**06**
	(b)	Write a note on gas laws with their assumptions.	**05**
	(c)	Discuss theories of mass transfer.	**05**
Q.4	**(a)**	Classify heat exchangers. Write a note on any one of it.	**06**
	(b)	Explain unit operation, unit processes and tie-substance.	**05**
	(c)	With labeled diagram, describe principle and working of rotameter.	**05**
Q.5	**(a)**	Explain Bernoulli's Theorem in detail.	**06**
	(b)	Give name of different valves and write about globe valve	**05**
	(c)	Explain heat transfer by radiation	**05**
Q. 6	**(a)**	Derive equation for heat transfer by conduction through compound resistance in series	**06**
	(b)	What is Reynolds number? Show how it is dimensionless. What is its significance in fluid flow?	**05**
	(c)	What is black body? Explain about the Stefan-Boltzmann law for black bodies	**05**
Q.7	**(a)**	Write a brief note on physical factors affecting selection of material of plant construction	**06**
	(b)	Define corrosion. Write a note on factors affecting the corrosion.	**05**
	(c)	Write short note on Glass as a material for plant construction	**05**

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