GUJARAT TECHNOLOGICAL UNIVERSITY
B.Ph. SEMESTER–III • EXAMINATION – WINTER -2020

Subject Code: 2230002   **Date: 05/03/2021**
Subject Name: Pharmaceutical Engineering
Time: 10:30AM TO 12:30PM   **Total Marks: 54**

Instructions:
1. **Attempt any THREE questions from Q-1 to Q-6.**
2. **Q.7 is compulsory to attempt.**
3. **Make suitable assumptions wherever necessary.**
4. **Figures to the right indicate full marks.**

Q.1	**(a)**	Define: Unit operation and Unit process. What are significances of studying Pharmaceutical engineering?	**06**
	(b)	Discuss dimensional analysis, its advantages and disadvantages.	**05**
	(c)	Write Short note on "Total mechanical energy balance".	**05**
Q.2	**(a)**	What is the principle of working of Rota meters? Give their general design and working.	**06**
	(b)	What is Reynolds number? Show how it is dimensionless. What is its significance in fluid flow?	**05**
	(c)	Classify flow meters. Write a note on any one of them.	**05**
Q.3	**(a)**	Define Coefficient of discharge. Give the difference between orificemeter and venturimeter.	**06**
	(b)	Explain differential manometers in detail.	**05**
	(c)	Classify the conveyors. Write a note on any one of them.	**05**
Q.4	**(a)**	Define BLACK BODY. Write and explain Stefan-Boltzman law of radiation for black bodies.	**06**
	(b)	Explain Raoult's law and Dalton's law.	**05**
	(c)	What is tie substance? Discuss its stoichiometric importance.	**05**
Q.5	**(a)**	Write a note on Ejector pump.	**06**
	(b)	Derive equation for conduction of heat through a circular pipe.	**05**
	(c)	Describe factors affecting transfer of mass from solid to a fluid with diagrams.	**05**
Q. 6	**(a)**	Define Fourier's law. Derive an equation for heat transfer when resistance is in series.	**06**
	(b)	Classify boilers. Enumerate boiler accessories.	**05**
	(c)	Discuss the various factors affecting selection of material of plant construction.	**05**
Q.7	**(a)**	Define corrosion. Classify the types of corrosion. How do you prevent the galvanic corrosion?	**06**

OR

	(a)	Write short note on Glass as a material for plant construction.	**06**

OR

	(a)	Define corrosion. Describe galvanic corrosion and its prevention.	**06**

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