

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm. – SEMESTER – III • EXAMINATION – SUMMER • 2015

Subject Code: 2230002**Date: 09-06-2015****Subject Name: Pharmaceutical Engineering****Time: 02:30 pm To 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.

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| Q.1 | (a) What is a unit operation? Describe importance of pharmaceutical engineering. | 06 |
| | (b) Describe different types of graphical presentation. | 05 |
| | (c) What is Amagat's law? Describe its corollary. | 05 |
| Q.2 | (a) Discuss in brief about dimensional analysis. | 06 |
| | (b) Describe types of fluid flow. | 05 |
| | (c) Discuss principle, construction, working and advantages of Rotameter. | 05 |
| Q.3 | (a) Explain Bernoulli's Theorem in detail. | 06 |
| | (b) Describe in brief about orifice meter. | 05 |
| | (c) One hundred pounds of wet air containing 0.10 Lb of water vapour /pound of dry air is mixed with 50 Lb of another wet air containing 0.02 Lb of water vapour /pound of dry air. Calculate pounds of water vapour per/pound of dry air in the final mixture. | 05 |
| Q.4 | (a) Classify transport systems for solid. Explain belt conveyor. | 06 |
| | (b) Write a note on Multipass Heatexchanger. | 05 |
| | (c) Copper rod is 3' long and 2'' diameter with K=220. Rod is insulated so that heat loss may be neglected. If one end has temp. 70°F and other end has 220°F. Calculate rate of heat flow along the rod in Btu/hr. | 05 |
| Q.5 | (a) Derive equation for heat transfer by conduction through compound resistance in series. | 06 |
| | (b) Enlist different types of valve. Describe check valve. | 05 |
| | (c) Describe influences of mass transfer on unit operations | 05 |
| Q. 6 | (a) Define black body. Explain heat transfer by radiation. | 06 |
| | (b) Write a short note on steam as a heating medium. | 05 |
| | (c) Discuss various factors affecting on selection of materials for plant construction. | 05 |
| Q.7 | (a) Describe factors affecting on selection of pumps. Discuss reciprocating pump. | 06 |
| | (b) Describe in brief about glass as a material for pharmaceutical plant construction. | 05 |
| | (c) Discuss about different types of manometers. | 05 |
