

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.

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|-------------|--|-----------|
| 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 Bernoulli'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 |
