

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.PHARM - SEMESTER- 3 EXAMINATION – SUMMER -2019**

**Subject Code: 2230002****Date: 01-06-2019****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.

- Q.1** (a) What is tie substance? Briefly explain the principle of material balance taking example of a tie substance. **06**
- (b) Define stoichiometry. Give significance of “stoichiometry” in pharmacy field. **05**
- (c) Define and explain the terms with appropriate example **05**
- (1) Dimensional analysis
- (2) Dimensional formulae
- Q.2** (a) What is Reynolds number? Give it significance. **06**
- (b) Enumerate types of manometer. Explain differential manometers. **05**
- (c) Enumerate energy losses in pipe. Explain Enlargement losses. **05**
- Q.3** (a) Explain Fourier’s law. **06**
- (b) Explain Overall heat transfer coefficient. **05**
- (c) Derive the equation for conduction when metal in series. **05**
- Q.4** (a) Describe in brief diagrams various pumps used for transportation of sterile liquids. **06**
- (b) Write a brief note on storage of liquids and gases in plant. **05**
- (c) Write note on various rotary positive displacement pumps. **05**
- Q.5** (a) Write a note on pneumatic conveyer. **06**
- (b) Define corrosion. Write a note on factors affecting the corrosion. **05**
- (c) Write a short note on Glass as a material for plant construction. **05**
- Q.6** (a) Discuss the various methods for the prevention and control of corrosion. **06**
- (b) Discuss the various factors affecting selection of material of pharmaceutical plant construction. **05**
- (c) Explain solid – Fluid mass transfer. **05**
- Q.7** (a) Write a note on Rotameter. **06**
- (b) Explain Black Body and gray body. **05**
- (c) Give the difference between Orifice meter and Venturi meter. **05**

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