

GUJARAT TECHNOLOGICAL UNIVERSITY
B.Pharm - SEMESTER-I • EXAMINATION – SUMMER-2017

Subject Code: 210004

Date: 30/05/2017

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) Define the following terms: (i) Unit operations (ii) Dimensional equation. Give the importance of pharmaceutical engineering in the field of pharmacy. **06**
(b) List the unit operations & unit processes. Write the SI units for mass, length, time, temperature, heat & force. **05**
(c) Write a short note on different types of graphical representations. **05**
- Q.2** (a) Define and explain following terms giving appropriate examples. **06**
(1) Stoichiometry (2) Unit operation (3) Tie substance
(b) Discuss Dalton's law, Amagat's law and their corollary. **05**
(c) Write a brief note on material and energy balance. **05**
- Q.3** (a) Describe total mechanical energy balance. **06**
(b) Give Reynold's equation. Why it is dimensionless, prove it and mention significance of Reynold's number. **05**
(c) Differentiate (1) Orifice meter and Venturimeter. (2) Stream line and Turbulent flow. **05**
- Q.4** (a) Classify transport systems for solid. Explain belt conveyor. **06**
(b) Explain Piston Pump. **05**
(c) Describe pneumatic conveyors with its diagram. **05**
- Q.5** (a) What is thermal radiation? Explain the concept of Black body and Gray body in thermal radiation. **06**
(b) What is conduction? Give Fourier's law and derive its equation. **05**
(c) Explain briefly Bucket type steam trap. **05**
- Q.6** (a) Discuss the principle involved in mass transfer. Enumerate unit operations in which mass transfer operation is involved. **06**
(b) Write a short note : Steam as Heating media **05**
(c) Classify heat exchange equipment. Discuss construction and working of single pass tubular heat exchanger. **05**
- Q.7** (a) Discuss the theory of corrosion. Describe the importance of corrosion. **06**
(b) Discuss various factors affecting on selection of materials for plant construction. **05**
(c) Discuss advantages and limitations of different kind of plastics used in Pharmaceutical industry. **05**
