

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm. – SEMESTER – III • EXAMINATION – WINTER • 2016

Subject Code: 2230002**Date: 21-11-2016****Subject Name: Pharmaceutical Engineering****Time: 02:30 pm - 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 stoichiometry. Give significance of “stoichiometry” in pharmacy field **06**
(b) Write short note on fuels and combustion. **05**
(c) Write in brief on material balance. **05**
- Q.2** (a) Enumerate energy losses in pipe. Explain Enlargement losses. **06**
(b) Differentiate between Dimensional equation – Dimensionless equation. **05**
(c) Explain unit operation, unit processes and tie-substance. **05**
- Q.3** (a) Discuss in brief overall heat transfer coefficient. **06**
(b) Explain differential manometers in detail. **05**
(c) Give name of different valves and write about globe valve. **05**
- Q.4** (a) Draw the diagram & explain in details about Liquid-Liquid heat Exchangers with spacer. **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.5** (a) Write short note on Glass as a material for plant construction. **06**
(b) Define corrosion. Describe galvanic corrosion and its prevention. **05**
(c) What are differences between pipe and tubing? **05**
- Q. 6** (a) Write note on various rotary positive displacement pumps. **06**
(b) Write in details with a diagram on belt conveyor and bucket conveyor. **05**
(c) Write a note on total energy balance in fluid flow. **05**
- Q.7** (a) A salt solution originally contains 4 % w/w NaCl in water is evaporated until the concentration is 5 % w/w NaCl: (NaCl is tie substance) **06**
(a) What is the percentage reduction in original solution?
(b) What percentage of the water evaporated?
- (b) With labeled diagram, describe principle and working of rotameter. **05**
(c) What is thermal radiation? Explain the concept of Black body and Gray body in thermal radiation. **05**
