

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER –VIII • EXAMINATION – SUMMER
2014

Subject Code: 385502**Date: 26/05/2014****Subject Name: Process Equipment Design****Time: 02:30 pm – 5:00 pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Each question carry equal marks (14 marks)

- Q.1** (a) State the General Design Procedure of Process Equipment. **07**
(b) Classify & explain the metallic material used for process equipment. **07**
- Q.2** (a) Explain Selection criteria of material for Process Equipment. **07**
(b) What is Rolling Contact bearing? Explain Advantages and Disadvantages of roller contact bearing. **07**
- OR
- (b) What is packaging and gasket? Explain with neat sketch. **07**
- Q.3** (a) Explain briefly classification of heat exchanger as per TEMA **07**
(b) Explain mechanical design consideration for heat exchangers. **07**
- OR
- Q.3** (a) Explain briefly following terms with respect to heat exchanger. **07**
1. Tube sheet 2. baffles. 3. Tie Rods. 4. Spacers. 5. Partial plate. 6. Inlet nozzle. 7. out let nozzle.
- (b) What is the minimum thickness required of cylinder shell with the following data. **07**
I.D = 3500 mm
Corrosion allowance = 5.0 mm
Weld joint = Type 1, 100 % RT
Design pressure = 2 MPA
Design temperature = 250°C
Material = SA 516 GR. 70
Loads other than pressure = NIL
- Q.4** (a) Explain different types of jackets used in reaction vessel with neat sketch. **07**
(b) Explain in briefly heating system in reaction vessel **07**
- OR
- Q. 4** (a) Explain different types of evaporators. Explain multiple effect evaporators. **07**
(b) Explain the design consideration of crystallizer. **07**
- Q.5** (a) Explain different types of internal used in distillation column with neat sketch. **07**
(b) Explain following Auto Cad commands in tabulated form **07**
Line, Circle, Erase, Rectangle, Trim, Offset, Stretch, Rotate, Fillet, Chamfer, Text, Dimension, Array, Layer

OR

- Q.5** (a) Explain piping and instrumentation diagram (P& ID) With neat sketch. **07**
(b) Explain safety measures to be taken for equipment used in process equipment design. **07**
