

GUJARAT TECHNOLOGICAL UNIVERSITY
Diploma Engineering - SEMESTER-V • EXAMINATION – SUMMER 2013

Subject Code: 355502**Date: 14-05-2013****Subject Name: Pipe Engineering****Time: 10:30 am - 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Write your seat no. and enrolment no. in the above given space.
3. Answer with neat sketch and to the point.
4. Make suitable assumptions wherever necessary.
5. Figures to the right indicate full marks.
6. Assume suitable data, if necessary

- Q.1** (a) Explain in brief with neat sketch : - **07**
 High Point Vent [**HPV**] & Low Point Drain [**LPD**]
 (b) State role of ASME B.31.3 Code in piping fabrication ? **07**

- Q.2** (a) Define the term 'pipe' W. R. to piping eng. ? **07**
 Classify the pipe / piping based on various criteria?
 (b) Explain in brief Functions and duties of piping engineering departments. **07**

OR

- (b) Calculate the diameter of pipe to carry , **07**

$$Q = \text{Discharge} = 500 \text{ lit / Min of water}$$

$$V_{\max} = \text{Maximum velocity} = 15 \text{ m / sec}$$

Also find the head losses due to friction

[Loss of pressure due to friction] in pipe if,

$$\text{Length of pipe} = L = 12 \text{ km}$$

Assume

$$\text{Coefficient of friction} = f = 0.015$$

$$\text{Gravitational constant} = g = 9.8 \text{ m / sec}^2.$$

- Q.3** (a) A spherical storage tank having: **07**
 Out side Diameter of spherical tank = $D_i = 410 \text{ cm}$,
 Thickness of tank = $t = 5 \text{ mm}$
 If the Rate of Painting = 80 Rs. / m^2
 If the Rate of Raw material = 120 Rs. / Kg

1] Find out the inside volume of storage tank.

2] Find the Total cost of out side Painting.

3] Find the Total cost of Raw material of tank

- (b) Define and Explain in brief : The Renolds' NO. **07**

OR

- Q.3** (a) Explain in brief : - Design of typical pipe Support **07**
 (b) List the piping element. **07**
 Draw a neat sketch / figure of any five piping fitting and state their application
 for piping engineering , draw its symbol

- Q.4** (a) 1) Explain in brief with neat sketch : - flanged joint of pipe **07**
 2) Classify the pipe based on end connection and state their typical application
 (b) Prepare PQR with help of following data. **07**
 (Assume suitable addition data , if necessary)

1) Matériel : SA 516 GR 60

2) Pipe dia : 250 mm

3) Electrode : E-7018 of $\phi 3.15 \times 350 \text{ mm}$

4) Thickness of pipe : 12 mm (assume)

5) Welding process : SMAW

6) Position : 5G/6G

OR

- Q.4** (a) Describes the factor affecting piping equipment layout. **07**
 (b) Explain in brief with neat sketch : - 1) Steam traps , 2) Pipe Strainer **07**

- Q.5** (a) List out the various types of drawing used in piping eng.? **07**
Draw neat sketch and explain in brief :- ISO PIPING
- (b) 1) Explain in brief with neat sketch :- The Term 'gasket' in piping eng. **07**
2) State causes of PIPE flange leakage in piping systems ?
- OR**
- Q.5** (a) Define the term ' heat insulation ' ? **07**
Classify the various types of insulation /state its application ?
List out the name of the various types of heat insulation ,
their properties / applications ?
- (b) Explain in brief with neat sketch :- **07**
Step's followed in pipe fabrication Process ?
