Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering - SEMESTER–V • EXAMINATION – WINTER • 2014

Subject Code: 355502 Date: 28-11-2014

Subject Name: Piping Engineering

Time: 10:30 am - 01:00 pm Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **English version is considered to be Authentic.**

Q.1 (a) Define the term ` pipe ' ? **07**
Explain the classification of pipe / piping based on various criteria?

(b) Explain in brief with tabulated form : MTO used for pipe fabrications **07**

Q.2

(a) Calculate the diameter of pipe to delivered , **07**

Q = Discharge = 800 lit / Min of water
V = Maximum velocity = 15 M / sec
Also find the loss head due to friction
[Loss of head/pressure due to friction] in pipe if,
Length of pipe = L = 10 k M
Assume
Co efficient of friction = f = 0.015
Gravitation al constant = g = 9.8 M / sec^2.

(b) Compare the following terms with neat sketch : **07**
1. Short radius and long radius Elbow.
2. Pipe and Tubes
3. Normal and Reducer Tee

OR

(b) Explain in brief with neat sketch : - Steam-trap used in piping **07**

Q.3

(a) List out the various types of drawing used in piping engineering **07**
Explain in brief with neat sketches : P. & I. D . used in piping eng.

(b) List out the various types of drawing used in piping engineering.? **07**
Explain in brief with neat sketches : P. & I. DIAGRAM used in piping eng.

OR

Q.3 (a) State the reasons to provide : High Point Vent [HPV] , Low Point Drain [LPD] in piping engineering liquid storage tank with delivery pipe height from bottom 3d to 5d. **07**

(b) Prepare WPQ with help of following data. (Assume suitable addition data , if necessary)

1) Matériel : SA 106 GR 70
2) Pipe dia : 500 mm
3) Electrode : E-7018 of Φ 4 × 450 mm
4) Thickness of pipe : 10 mm (assume)
5) Welding process : SMAW
6) Position : 5G/6G

Q.4 (a) State functions and duties of piping engineering department. **07**

(b) Explain in brief : codes and standards used for piping eng **07**

OR

Q. 4 (a) Explain in brief : The information available on " Nozzle schedule table " of typical blue print. **07**

(b) A spherical storage tank having: **07**

Out side Diameter of spherical tank = D_i = 520 cm ,

Thickness of tank = t = 10mm

If the Rate of Painting = 60 Rs. / M^2

If the Rate of raw material = 100 Rs. / Kg

1] Find out the inside volume of storage tank & Total cost of raw material of tank .

2] Find out the Total cost of out side Painting.

Q.5

(a) Describe the impotence of Fasteners' tightening / loosening seq. of flanges ? **07**

(b) Define the term ' heat insulation ' ? **07**
List the various types of insulation & State their properties/applications ?

OR

Q.5 (a) Explain in brief : - Mechanical seal and gasket **07**

(b) Define the pipe support and restraint. **07**
State the function of pipe support.
Classify the pipe support.

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