

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
Diploma Engineering Semester –V Examination Dec'11- Jan'12

Subject code: 355502

Date: 22/12/2011

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 Authentic.

Q.1

- (a) Classify the pipe / piping based on various criteria 07
(b) Explain in brief with neat sketches : - 07
HIGH POINT VENT [HPV] & LOW POINT DRAIN [LPD] and
delivery line from bottom of tank in piping eng. approximate 3d to
5d distance.

Q.2

- (a) State role of ASME B.31.3 Code in piping fabrication 07
(b) Explain in brief : - Design of typical pipe Support 07

OR

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

$$Q = \text{Discharge} = 400 \text{ lit / Min of water}$$

$$V = \text{Maximum velocity} = 12 \text{ M / sec}$$

Also find the loss head due to friction

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

$$\text{Length of pipe} = L = 8 \text{ km}$$

Assume

$$\text{Co efficient of friction} = f = 0.015$$

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

Q.3

- (a) A spherical storage tank having: 07

$$\text{Out side Diameter of spherical tank} = D_i = 210 \text{ cm ,}$$

$$\text{Thickness of tank} = t = 5 \text{ mm}$$

$$\text{If the Rate of Painting} = 60 \text{ Rs. / M}^2$$

$$\text{If the Rate of raw material} = 100 \text{ Rs. / Kg}$$

- 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) Explain in brief with tabulated form : MTO used for pipe
fabrications

OR

- Q.3** (a) Explain in brief with neat sketch : - Syphons in water pipe . 07

- (b) 07
1. List the piping element.
2. Explain and Classify the pipe based on end connection and
state their typical application

Q.4

- (a) Compare the following terms with neat sketch : (any three) **07**
1. Short radius and long radius Elbow.
 2. Eccentric and concentric Reducer
 3. Pipe and Tubes
 4. Normal and Reducer Tee
 - 5 Use of Bend and Elbow in piping / pump

- (b) Prepare WPS with help of following data. **07**

(Assume suitable addition data , if necessary)

- 1) Matériel : SA 516 GR 60
- 2) Pipe dia : 150 mm
- 3) Electrode : E-7018 of O 3.15 × 350 mm
- 4) Thickness of pipe : 8 mm (assume)
- 5) Welding process : SMAW
- 6) Position : 5G/6G

OR

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

- (b) Explain in brief :- Primary piping design procedure. **07**

Q.5

- (a) List out the various types of drawing used in piping eng. **07**
Draw neat sketch and explain in brief :- Plot Plan

- (b) Classify the gasket based various criteria ? **07**
List out the properties of gasket required and state their need and function ?

OR

- Q.5** (a) 1. Define the term ‘ heat insulation ’ ? **07**
2. List the various types of insulation ?
3. State various types of heat insulation state their properties / applications ?

- (b) 1. Define the term “ pipe purging “ ? **07**
2. List the Different types of purging systems ?
3. Explain in brief :- The features of pipe purging process ?
