

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**Diploma Engineering - SEMESTER – V • EXAMINATION – WINTER 2012**

**Subject code: 355502**

**Date: 26/12/2012**

**Subject Name: Piping Engineering**

**Time: 10.30 am - 01.00 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. English version is considered to be Authentic.

- Q.1** (a) Defines the fluid and classifies the fluid flow. **07**  
Explain in brief : What do you understand by pipe sizing ?
- (b) Explain in brief : preliminary criteria of piping design. **07**
- Q.2** (a) Calculate the diameter of pipe to carry , **07**  
 $Q = \text{Discharge} = 200 \text{ lit / Min of water}$   
 $V = \text{Maximum velocity} = 11 \text{ M / sec}$   
Also find the loss head due to friction  
[ Loss of pressure due to friction] in pipe if,  
Length of pipe =  $L = 10 \text{ km}$   
Assume  
Co efficient of friction =  $f = 0.015$   
Gravitation al constant =  $g = 9.8 \text{ M / sec}^2$ .
- (b) Classify the pipe support. **07**  
Draw neat sketch of any five pipe types supports.  
State the function of pipe support.
- OR
- (b) Explain in brief with neat sketch Pipe Strainer **07**
- Q.3** (a) A spherical storage tank having: **07**  
Out side Diameter of spherical tank =  $D_i = 320 \text{ cm}$  ,  
Thickness of tank =  $t = 10 \text{ mm}$   
If the Rate of Painting =  $60 \text{ Rs. / M}^2$   
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) List the various types of drawing used in piping engineering **07**  
Explain meaning of piping spools in piping eng.
- OR
- Q.3** (a) Explain in brief with tabulated form : MTO used for pipe **07**  
fabrications
- (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

- Q.4** (a) Prepare WPQ with help of following data. **07**  
 (Assume suitable addition data , if necessary )  
 1) Matériel : SA 516 GR 60  
 2) Pipe dia : 200 mm  
 3) Electrode : E-7018 of  $\Phi$  3.15  $\times$  350 mm  
 4) Thickness of pipe : 10 mm (assume )  
 5) Welding process : SMAW /GTAW  
 6) Position : 5G/6G
- (b) Explain in brief : The information available on “ Nozzle schedule table ” of typical blue print. **07**
- OR
- Q. 4** (a) Explain in brief with neat sketches for criteria for developing equipment and piping layout. **07**
- (b) 1. Define the term ‘ heat insulation ’ ?  
 2. List the various types of insulation state their properties / applications ? **07**
- Q.5** (a) Explain in brief with neat sketch :- procedure for checking of piping drawings. **07**
- (b) Explain the term “coating”? **07**  
 classify coating based on various criteria .  
 Explain any one method of applying of coating
- OR
- Q.5** (a) Explain in brief : - Mechanical seal and gasket **07**
- (b) Explain in brief : method of pipe cutting and their edge preparation **07**

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