

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER – V • EXAMINATION – WINTER 2016

Subject Code: 3355502**Date: 21-11 -2016****Subject Name: PROCESS PIPING FABRICATION****Time: 10:30 AM TO 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. Each question carry equal marks (14 marks)

- Q.1** (a) Define the term pipe with respect to piping engineering, Classify the pipe /Piping based on various criteria. **07**
- (b) Describe concept of high point vent & low point drain in piping system with neat sketch. **07**
- Q.2** (a) Describe function of steam traps & Expansion joint with neat sketch. **07**
- (b) Prepare WPS as per ASME sec IX in Standard format from the given data: **07**
- a) Material : SA 106 Thick. Of pipe material=10mm
- b) Pipe size : ϕ 4" N.B (ϕ 100mm)/ ϕ 12" NB (ϕ 300mm).
- c) Thickness of pipe : 6 mm (assume)
- d) Process : MMAW
- e) Position : 5G
- f) Grooved design : Single 'v' at 35°
- OR
- (b) List various piping codes/standards & Describe role of ASME B 31 code in pipe fabrication? **07**
- Q.3** (a) Define the term 'gasket'? **07**
- Classify the gasket on various basis?
- State / give its Application / Function?
- (b) Define the term 'heat insulation'. **07**
- Classify the various types of insulation, & State its application.
- OR
- Q.3** (a) Describe in brief : duties & responsibilities of piping field engineer **07**
- (b) Describe in brief with neat sketch : State relationship among **07**
1. Absolute pressure
2. Gauge pressure
- Q.4** (a) List out the various phases / stages of life cycle of process plant. **07**
- Describe in brief : - Techno-economical feasibility
- (b) Classify 'Coating' and 'insulation'. State their need / function. **07**
- OR
- Q.4** (a) Classify flanges based on various criteria **07**
- (b) Calculate the diameter of pipe to carry, **07**
- Discharge : $Q = 200$ lit/min of water
- Maximum velocity : $V = 5$ M/sec
- Also find the losses due to friction [Losses of pressure due to friction in pipe]
- if, Assume Length of pipe : $L = 2$ km
- Co efficient of friction : $f = 0.015$
- Gravitational constant : $g = 9.81$ M/sec².
- Q.5** (a) Describe in brief with neat sketch :- Pipe Strainer **07**

(b) Describe in brief with neat sketch: - Piping layout and equipment arrangement.

07

OR

Q.5 (a) Answer the following questions from the given piping isometrics drawing (Fig.No.1)

14

I Write/state

1. Drawing No. And Revision.
2. No. of spools in this Isometrics.
3. No. Of Bends / Elbows with size.
4. No. of reducers with size.
5. State the Start pt. co-ordinates. (N, E, EL)

II Calculate and Show all necessary calculations for it.

- (a) No. Of Site/Field Joint
- (b) No. Of Shop/Spool Joint
- (c) Total No. Of Joints
- (d) End point co-ordinates (N, E, EL)

III Calculate total Amount of (a) Inch-Meter Erection In Piping Isometrics.
(b) Inch-Dia. Welding In Piping Isometrics.

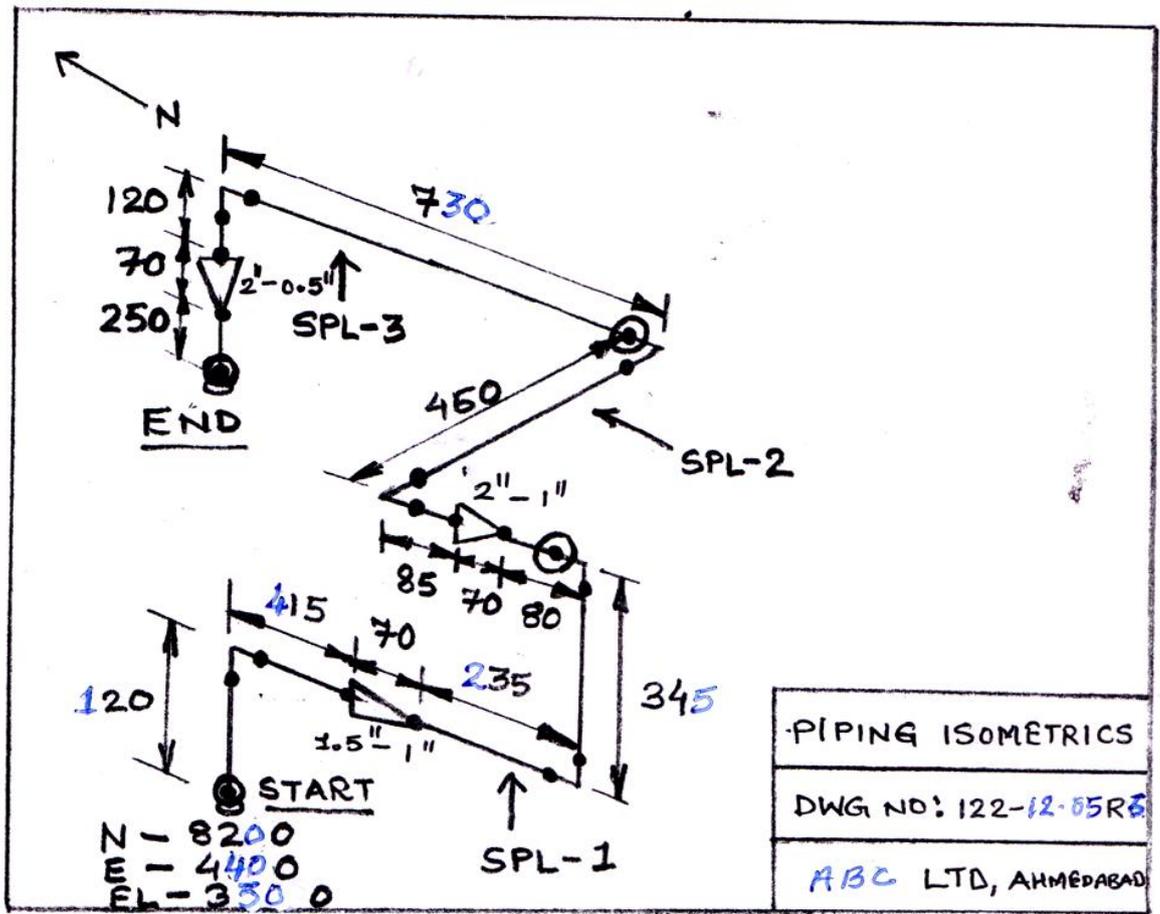


Fig. No-1
