

**GUJARAT TECHNOLOGICAL UNIVERSITY****Diploma Engineering - SEMESTER-V • EXAMINATION – WINTER 2013****Subject Code: 355502****Date: 29-11-2013****Subject Name: Piping Engineering****Time: 02:30 pm - 05:00 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.
- 5.

- Q.1** (a) Define the term 'Pipe' and Classify the pipes based on various criteria. **07**  
 (b) Describe Functions and duties of piping engineering department. **07**
- Q.2** (a) Prepare lists of following Piping elements: **07**  
 (1) Various types of Pipe fittings.  
 (2) Various types Fasteners.  
 (3) Various types of valves.  
 (4) Various types Piping specialties.  
 (b) Answer the following questions from given Piping I S O drawing with necessary calculations: **07**  
 1. Write (a) Drawing No. (b) Revision No. (c) Start point co-ordinates.  
 2. End point co-ordinates (N, E, EL).  
 3.1 No. Of Site /Field Joint  
 3.2 No. Of Shop/Spool Joint  
 3.3 Total No. Of Joints  
 3.4 No. of reducers with size  
 3.5 No. Of Bends / Elbows with size.  
 3.6 No. of spools in given Isometrics  
 4. Total Amount of :  
 1 ) Inch-Meter Erection In Piping Isometrics.  
 2) Inch-Dia. Welding In Piping Isometrics.
- OR
- (b) Define and Explain 'Renolds number'. List various types of flow. Compare Laminar and Turbulent flow. **07**
- Q.3** (a) A spherical Storage tank is having O.D =  $D_o = 610$  cm, Thickness =  $t = 5$  mm. **07**  
 If Rate of Painting = 120 Rs. /  $m^2$  and Cost of Raw material = 200 Rs. / Kg  
 Find: 1] Inside volume of storage tank.  
 2] Total cost of outside Painting.  
 3] Total cost of Raw material of tank.  
 (b) Describe role of ASME & API Codes in piping engineering. **07**
- OR
- Q.3** (a) Describe Design consideration of typical pipe Support. **07**  
 (b) Give classification of Gasket based on various criteria. **07**  
 State properties, need and functions of gasket.
- Q.4** (a) Give Classification of Pipes based on end connection with neat sketch and state their typical application **07**

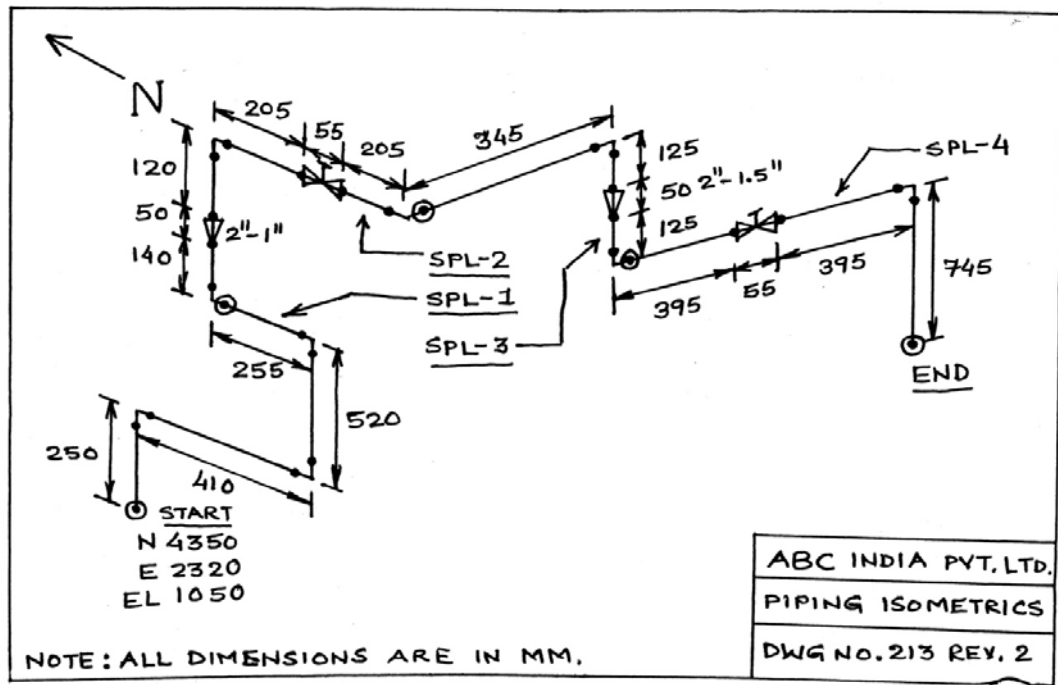
- (b) Prepare PQR for following data:(Assume suitable addition data if necessary ) 07
1. Material : SA 516 GR 70
  2. Pipe dia : 500 mm
  3. Electrode : E-7018 of  $\phi 4 \times 350$  mm
  4. Thickness of pipe : 12 mm (assume )
  5. Welding process : SMAW
  6. Position : 5G/6G

OR

- Q. 4 (a) Define the term 'Pressure drop' (head losses) in piping ? 07  
Explain the phenomena of pressure drop and state its causes.
- (b) Explain 'Steam traps' with neat sketch. 07
- Q.5 (a) Explain Pipe schedule chart / table. Confirm weight for ANY ONE example. 07  
(b) Classify Pressure measuring devices and describe ANY ONE with neat sketch. 07

OR

- Q.5 (a) Define the term 'Heat insulation' and Explain Piping insulation with neat sketch. 07
- (b) Compare up hill & down-hill welding with neat sketch. 07



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