

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**DIPLOMA ENGINEERING – SEMESTER – V • EXAMINATION – SUMMER • 2015**

**Subject Code: 350504****Date: 12-05-2015****Subject Name: Utility and Instrumentation in Chemical Plant****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.

- Q.1** (a) Explain the role of various utilities in chemical industries. **07**  
(b) List out various methods for purification of water and explain any one in detail. **07**
- Q.2** (a) Define : Wet steam, saturated steam, superheated steam and specific volume of steam. **07**  
(b) Explain the working , construction of Lancashire boiler with neat sketches. **07**  
OR  
(b) Describe the importance of Air as utility in industry. **07**
- Q.3** (a) Discuss the usefulness of Inert gases in detail. **07**  
(b) Shortnote on Refrigerants. **07**  
OR
- Q.3** (a) Discuss the importance of Instrumentation in Chemical Plant. **07**  
(b) Compare the characteristics of Instrument. **07**
- Q.4** (a) Explain the principle, working and construction of pressure spring thermometer. **07**  
(b) Explain the different principles of thermoelectricity for temperature measurement. **07**  
OR
- Q. 4** (a) Classify the level measuring devices and explain any one in detail. **07**  
(b) List out various viscosity measurement methods and explain capillary tube method. **07**
- Q.5** (a) Explain PLC and DCS. **07**  
(b) Explain Pressure and Flow control Loop. **07**  
OR
- Q.5** (a) Difference between hygrometer and hydrometer.& describe pH measurement by pH meter. **07**  
(b) Explain Bourdon Tube gauge for pressure measurement. **07**

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