

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER –V • EXAMINATION – SUMMER 2017

Subject Code: 350504**Date: 09- 05 -2017****Subject Name: Utilities & Instrumentation in Chemical Plant****Time: 02:30 PM TO 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. Each question carry equal marks (14 marks)

- Q.1** (a) Justify the need of Utilities and Instrumentation in chemical plant. **07**
(b) Classify instruments and discuss basic elements of instruments. **07**
- Q.2** (a) What are various methods of water softening? Describe lime soda process. **07**
(b) Explain in brief the required properties of boiler feed water. **07**
OR
(b) Write down the factor affecting in selection of refrigerants. **07**
- Q.3** (a) Write down principle, construction and working of Bi-metallic thermometer **07**
(b) List out various methods of refrigeration. Explain ice Refrigeration. **07**
OR
- Q.3** (a) Draw stages of purification of water and explain sterilization stage. **07**
(b) Discuss working and construction of Hair Hygrometer. **07**
- Q.4** (a) Discuss static and dynamic characteristics of Instrument. **07**
(b) List out various pressure measuring devices. Explain any one. **07**
OR
- Q.4** (a) Discuss differences between PLC and DCS system. **07**
(b) Write down types of air compressors and discuss any one. **07**
- Q.5** (a) Draw neat and clean diagram with various part's name of Locomotive fire tube boiler. **07**
(b) Discuss working and construction of Hydrometer. **07**
OR
- Q.5** (a) Explain with neat and clean diagram: Instrument Air **07**
(b) List various viscosity measurement methods and explain any one method. **07**
