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GUJARAT TECHNOLOGICAL UNIVERSITY DIPLOMA ENGINEERING – SEMESTER – V-EXAMINATION – WINTER 2015

Subject Code: 350504 Date: 10/12/2015 **Subject Name:** Utility and Instrumentation in Chemical Plant Time: 10:30 AM TO 1:00 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) Write down the role of various utilities in chemical plant in detail. 07 Draw neat and clean diagram with various part's name of Locomotive fire 07 (b) tube boiler. **Q.2** Define Instrumentation and discuss various characteristics of Instruments. 07 (a) Define TOR and explain important physical properties of Ammonia as primary 07 (b) refrigerant. OR List out various types of compressors. Explain multistage compressor. (b) 07 **Q.3** Discuss the working and construction of Hydrometer. 07 (a) 07 (b) List viscosity measurement methods and explain Falling Sphere method. OR List the methods of level measurement and explain Air Trap Box method. **Q.3** (a) 07 Discuss the differences between PLC and DCS **07** (b) **Q.4** Write the principle, working and construction RTD. 07 (a)

Write down principle, construction and working of Bi-metallic thermometer

(b)

07

Q.4	(a)	What are various methods of water softening? Describe lime soda process.	07
	(b)	Explain with neat and clean diagram: Vapor Refrigeration System .	07
Q.5	(a)	Write the principle , construction and working of Optical Radiation Pyrometer.	07
	(b)	Explain: Dead weight pressure gauge.	07
		OR	
,	(a)	Write principle, construction and working of Thermocouple.	07
	(b)	Explain with neat and clean diagram: Bourden Tube pressure guage.	07
