Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI (OLD).EXAMINATION – WINTER 2016

Subject Code: 161701 **Date: 26/10/2016**

Subject Name: Instrumentation System

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.**

Q.1	**(a)**	Describe typical installation details about a d/p cell.	**07**
	(b)	Draw the loop wiring diagram for any analog closed loop as per standard instrumentation practice from field to control room and explain its importance.	**07**
Q.2	**(a)**	Compare Pneumatic versus Electronic Instrumentation in brief with an example.	**07**
	(b)	Draw and explain large Instrumentation Air system.	**07**
		OR	
	(b)	What is electric Safety? Classify hazardous area according to NEC.	**07**
Q.3	**(a)**	What are responsibilities and duties of Instrumentation Engineer while plant is being commissioned?	**07**
	(b)	Describe various communications systems used in plant control room.	**07**
		OR	
Q.3	**(a)**	Give the general consideration for specification of pressure measurement under engineering design criteria.	**07**
	(b)	Classify the basic types of control panels. Discuss flatface control panels.	**07**
Q.4	**(a)**	Why dryer is needed? List out various design criteria to keep in mind for desiccant type dryer specifications.	**07**
	(b)	Explain typical flow transmitter check out procedure.	**07**
		OR	
Q.4	**(a)**	Which are the factors that should be consider in designing instrument air systems? Explain reciprocating compressor.	**07**
	(b)	Explain typical control valve check out procedure.	**07**
Q.5	**(a)**	Explain various points to be considered while designing a control room for any process industry.	**07**
	(b)	Describe various methods used for temperature measurement. Explain selection criteria for radiation pyrometer and thermistor.	**07**
		OR	
Q.5	**(a)**	Draw the symbols for the following as per ISA standards. 1) Angle valve 2) Venturi Tube 3) Electrical line 4) Check valve 5) Water cooled condenser 6) Capillary tube 7) Pneumatic Process Line.	**07**
	(b)	Explain selection criteria for variable area flow meters with advantages & disadvantages.	**07**

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