

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER– V (New) EXAMINATION – WINTER 2019****Subject Code: 2151704****Date: 02/12/2019****Subject Name: Control System Components****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.

		<b>MARKS</b>
<b>Q.1</b>	(a) Draw ISA Symbol for various types of lines used in P&I diagram.	<b>03</b>
	(b) Draw ISA symbol for: Damper, Pressure relief valve, Water cooled condenser, Diaphragm valve.	<b>04</b>
	(c) What is Control Valve? Give the Difference between Single port and double port Globe valve.	<b>07</b>
<b>Q.2</b>	(a) Explain different valve noise problem.	<b>03</b>
	(b) Define the following terms: (1) Valve Capacity (2) Valve Rangeability (3) Trim (4) Corrosion.	<b>04</b>
	(c) Explain the Control room Layout.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(c) Give the Comparison between the Control Panels.	<b>07</b>
	(a) Discuss instrument power requirements in brief.	<b>03</b>
	(b) List the classification of compressor used for Instrument air supply and explain any one type in detail with sketch advantages and Disadvantages.	<b>04</b>
(c) Give classification of dryers and explain desiccant type dryers in detail.	<b>07</b>	
<b>OR</b>		
<b>Q.3</b>	(a) Define following terms with reference to control valve: Flashing, Chocking, Galling.	<b>03</b>
	(b) Write a short note on force balance type positioner.	<b>04</b>
	(c) Explain the construction and working of ball valve with its advantages and disadvantages.	<b>07</b>
<b>Q.4</b>	(a) Give the construction and working of a pinch valve in detail.	<b>03</b>
	(b) Write a short note on Diaphragm valve.	<b>04</b>
	(c) Explain the Hazardous area and its classification in brief.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Explain the three way valve with neat sketch and list the application.	<b>03</b>
	(b) Explain the Smart Transmitter in brief.	<b>04</b>
	(c) Explain the Relief valve with neat sketch.	<b>07</b>
<b>Q.5</b>	(a) Explain Frequency to Voltage (F-V) Converter in detail.	<b>03</b>
	(b) What is Recorder? Explain any one type of Recorder with neat sketch.	<b>04</b>
	(c) What is the Purpose of Pressure relieving device? Explain Rupture discs in detail.	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) Explain Electric to Pneumatic (I-P) Converter with neat sketch.	<b>03</b>
	(b) Explain the control valve accessories in brief.	<b>04</b>
	(c) What is Actuator? Explain the Pneumatic Type actuator in detail.	<b>07</b>

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