

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-V EXAMINATION – WINTER 2025****Subject Code:3151709****Date:25-11-2025****Subject Name:Process Instrumentation****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.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) How tag numbering system become helpful in plant? Explain in brief with one example.	03
	(b) (1) Instrument capillary tube, (2) Check valve, (3) Screw conveyor, (4) Shell & Tube heat exchanger, (5) centrifugal pump, (6) globe valve, (7) diaphragm actuator, (8) closed proximity switch.	04
	(c) Enlist Flatface panels. Draw and explain all of these.	07
Q.2	(a) Draw Control Room Layout.	03
	(b) Draw and explain air headers.	04
	(c) Explain Desiccant Types of Dryers.	07
	OR	
	(c) Explain case purging for electrical area classification.	07
Q.3	(a) What must be the quality of air that used for the instrument air system? And what cause can be of water in the lines?	03
	(b) Explain sliding vane rotary compressor.	04
	(c) Explain Electrohydraulic type of actuator.	07
	OR	
Q.3	(a) What pressure levels used for instrument air systems? Explain in brief.	03
	(b) Explain Axial-flow compressor.	04
	(c) Explain Pneumatic type of positioned.	07
Q.4	(a) Define following Valve Terminology: (1) Balanced Valve, (2) Erosion, (3) Trim.	03
	(b) Explain Butterfly Valve.	04
	(c) With neat diagram Explain V to F and F to V converter.	07
	OR	
Q.4	(a) Define valve rangeability. Explain in brief.	03
	(b) Draw and explain all flow characteristics.	04
	(c) With neat diagram and example explain I to P converter.	07
Q.5	(a) Enlist different types of indicators and write applications of it.	03
	(b) Explain Strip-chart Recorder.	04
	(c) Explain motion balance pneumatic transmitter in detail.	07
	OR	
Q.5	(a) What is function of annunciator? Explain with one example.	03
	(b) Explain Angle Valve.	04
	(c) Explain force balance pneumatic transmitter in detail.	07
