

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VI EXAMINATION – SUMMER 2026

Subject Code:3161713

Date:08-06-2026

Subject Name: Instrumentation Project Management

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) List out disadvantages of mechanical transducer.	03
(b) Brief about ANSI, ATEX, IEC, ISA.	04
(c) Draw single loop diagram (electronic control loop) for Flow control. State the difference between P & I Diagram and Process flow sheet.	07
Q.2 (a) List out the typical software used in Instrumentation Design engineering.	03
(b) Brief about future and spare capacity - for field instruments and control room.	04
(c) Give classification of hazardous area according to NEC standard. Brief about the recommended protection methods used for instrumentation systems.	07
OR	
(c) State the various steps of CPM network technique for project planning. Differentiate CPM & PERT technique.	07
Q.3 (a) List out the important engineering documents required during project execution.	03
(b) Compare electronic and pneumatic instruments based on Safety, Control requirements, Cost and Dependability	04
(c) Discuss about control centers: location, layout, electrical classification and utilities.	07
OR	
Q.3 (a) Define term ' Project procedure '. What type of information it should provide ?	03
(b) List out the important planning consideration/guideline that should be considered for instrument job execution.	04
(c) Discuss the major functions carried out by project manager during execution of project. List out the other personal with whom instrument engineer should coordinate during project face.	07
Q.4 (a) How level, pressure, temperature and flow instruments are installed?	03
(b) Evaluate following level measurement methods in terms of their advantages and disadvantages i) D.P. Transmitter , ii) ultrasonic level transmitter	04
(c) Brief about typical guideline for selection and design of temperature measuring devices/ systems.	07

OR

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| Q.4 | (a) Brief about Calibration & Testing. | 03 |
| | (b) Evaluate following flow measurement methods in terms of their advantages and disadvantages
i) Magnetic flow meters ii) Vortex flow meters | 04 |
| | (c) Brief about typical guideline for selection and design of flow instruments/ systems | 07 |

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| Q.5 | (a) State the advantages and disadvantages of Single port, Double port globe valves | 03 |
| | (b) Brief about important consideration for following:
Location of Taps, Sealing instruments from process | 04 |
| | (c) Why loop checking is carried out ? Explain typical check out procedure for a pneumatic differential pressure cell used as a flow transmitter. | 07 |

OR

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| Q.5 | (a) Give the typical format for Instrument progress report. | 03 |
| | (b) Brief about types of control valves and their applications. | 04 |
| | (c) State the problems faced during the 'start up ' of plant . | 07 |
