

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– IV (New) EXAMINATION – WINTER 2019

Subject Code: 2141705

Date: 13/12/2019

Subject Name: Industrial Measurement I

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.

		Marks
Q.1	(a) Define following terms 1) Accuracy 2) Drift 3) fidelity	3
	(b) Explain with example of Active & Passive Transducers.	4
	(c) What is measurement? Explain different static and dynamic characteristics of measurement system	7
Q.2	(a) Explain in detail response of first order and second order system.	3
	(b) Write short note on selection criteria for transducer	4
	(c) What is the significance of dead weight of tester? Explain it with schematic diagram.	7
OR		
	(c) Explain air purge level measurement with neat sketch	7
Q.3	(a) Explain flapper-nozzle assembly	3
	(b) Explain the working principle of vortex flowmeter.	4
	(c) What are thermistors? How are they constructed? Draw and discuss their resistance-temperature characteristic	7
OR		
Q.3	(a) Explain the Vena Contracta & Stagnation Point.	3
	(b) Explain Pitot tube for flow measurement	4
	(c) Explain the electromagnetic flow meter with its basic principle of operation	7
Q.4	(a) Explain rota meter for flow measurement with its limitation.	3
	(b) Importance of Cold Junction Compensation & its circuits	4
	(c) Explain Doppler and Transit time Ultrasonic meter for flow measurement	7
OR		
Q.4	(a) Discuss Bellows type pressure sensor and its application for the measurement of absolute and gauge pressure.	3
	(b) Discuss the principle and construction of orifice plate flow meter	4
	(c) Explain the basic principle of RTD. Draw and discuss all the measurement circuitry for temperature measurement using RTD	7
Q.5	(a) Discuss the basic principle of manometer. Explain different types of manometers in detail	3
	(b) Write a short note on vibrating type level switches.	4
	(c) Describe the operating principle of radiation pyrometer for measurement of temperature	7
OR		
Q.5	(a) Specify Units of temperature, pressure and flow	3
	(b) Explain the method of level measurement in an open-to-atmosphere tank using differential pressure transmitter	4
	(c) Why is McLeod gauge considered to be a standard for measurement of pressure in the vacuum range? Explain the construction of McLeod gauge with basic principle of operation.	7
