

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2020****Subject Code:2151706****Date:20/01/2021****Subject Name:Industrial Measurement II****Time:10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) What is the basic principle of Resistive displacement transducer? Draw linear and angular resistive displacement transducer.	03
	(b) Draw & Discuss the principle of eddy current type proximity sensor.	04
	(c) Explain the principle and working of flapper-nozzle type pneumatic transducer for the displacement measurement.	07
Q.2	(a) Give the difference between Position sensitive detector and CCD detectors used in Laser transducer.	03
	(b) What is meant by Gauge Factor? Derive the expression for the gauge factor.	04
	(c) What is viscosity? Explain Rotational viscometer with its internal construction.	07
Q.3	(a) Draw the servomechanism application of synchros.	03
	(b) Enlist the properties of ultrasound. Discuss the principle of ultrasonic pulse-echo displacement transducer in detail with its block diagram.	04
	(c) Explain the construction of fiber-optic displacement transducer with its advantages and disadvantages.	07
Q.4	(a) In LVDT, the excitation frequency must be much higher than the core-movement frequency. State true or false. Justify your answer.	03
	(b) Discuss Absorption type dynamometer for torque measurement.	04
	(c) Explain the construction and working of 3-bit gray-coded digital absolute encoder for angular displacement measurement.	07
Q.5	(a) Explain principle, working and construction of Wet and Dry bulb type hygrometer.	03
	(b) List the various hydrometers. Explain Coriolis type hydrometer.	04
	(c) Explain condensation on chilled surface method for moisture measurement.	07
Q.6	(a) Discuss different sources of errors in conductivity measurement.	03
	(b) Discuss the construction of dual-beam nephelometer for turbidity measurement.	04
	(c) What is paramagnetism? Explain any one paramagnetic oxygen analyzer in detail.	07

- Q.7** (a) Discuss the basic principle of thermal conductivity analyzer for gas analysis. **03**
- (b) Explain flame ionization detector with its basic principle. **04**
- (c) Discuss the basic principle of chromatography. Draw and discuss the schematic diagram of HPLC. **07**
- Q.8** (a) Explain the basic components of mass spectrometry system. **03**
- (b) Discuss Electrospray Ionization method in mass spectrometry. **04**
- (c) Explain the principle and structural elements of dual-beam atomic absorption spectrophotometer. **07**

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