

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- V EXAMINATION-SUMMER 2023****Subject Code: 3151708****Date: 27/06/2023****Subject Name: Measurement in industry****Time: 02:30 PM TO 05:00 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) Explain Strain. Derive the expression of Gauge Factor for Strain Measurement.	03
	(b) Explain with sketch about Flapper Nozzle arrangement.	04
	(c) What is Viscosity? Explain Rotational viscometer with its internal construction.	07
Q.2	(a) Draw and discuss the principle of eddy current type proximity sensor.	03
	(b) Compare bonded and unbonded strain gauge.	04
	(c) Explain principle, working and construction of Magnetostrictive Transducer for displacement measurement.	07
OR		
	(c) Explain Time of flight method and triangulation measurement method of Laser type Displacement Transducer.	07
Q.3	(a) Explain Hair Hygrometer with necessary diagram.	03
	(b) Explain Consistency Measurement.	04
	(c) Explain in detail about LVDT with necessary diagram and its application.	07
OR		
Q.3	(a) Discuss Newtonian and non-Newtonian behavior of various fluids.	03
	(b) Explain the working principle of Load Cell with sketch.	04
	(c) Differentiate Thermal, Capacitive and Piezo-resistive accelerometer.	07
Q.4	(a) Explain humidity measurement technique with necessary diagram.	03
	(b) Discuss in detail about paramagnetic oxygen analyzer.	04
	(c) Explain condensation on chilled surface method for moisture measurement.	07
OR		
Q.4	(a) Explain the Beer Lamberts low with necessary sketch.	03
	(b) Discuss in detail about Non-dispersive type IR analyzer with neat sketch.	04
	(c) Define Conductivity. What are the different methods of Conductivity measurement? Explain any one method with basic principle, working and suitable application.	07
Q.5	(a) Explain Absorbion type dynamometer for torque measurement.	03
	(b) Discuss the factors that should be taken care while specifying an accelerometer for a particular application.	04
	(c) What is Chromatography? Classify it and explain gas chromatography in detail.	07
OR		
Q.5	(a) Explain in brief about Opacity Measurement.	03
	(b) Discuss the construction of dual-beam nephelometer for turbidity measurement.	04
	(c) Explain UV Visible Spectroscopy in Detail.	07
