

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (NEW) EXAMINATION – SUMMER 2024

Subject Code:3132405

Date:19-07-2024

Subject Name: Measurement & 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) Define (1) Accuracy (2) Sensitivity (3) Dead Zone.	03
	(b) Differentiate Active & Passive transducer.	04
	(c) Draw and Explain capacitive level measurement transducer.	07
Q.2	(a) Define transducer and discuss the classification of transducer.	03
	(b) Is it possible to measure time & frequency on oscilloscope? How?	04
	(c) With the help of neat & clean diagram explain the working of digital voltmeter.	07
	OR	
	(c) Explain application wise use of temperature sensor like RTD, thermistor and thermocouple.	07
Q.3	(a) With the help of block diagram explain Digital Storage Oscilloscope (DSO).	03
	(b) Compare electro-mechanical instruments with electronics instruments.	04
	(c) Enlist pressure measurement transducers and explain any one in detail.	07
	OR	
Q.3	(a) Describe requirements of signal conditioning in measurement.	03
	(b) Explain absolute instrument and secondary instrument.	04
	(c) Draw and explain rectifier type instruments with its advantages.	07
Q.4	(a) Mention the various importance of measurements.	03
	(b) With the help of block diagram explain working principle of Oscilloscope.	04
	(c) Enlist the methods of measurement for medium resistance and explain it.	07
	OR	
Q.4	(a) Explain current transformer.	03
	(b) Discuss potential transformer in detail.	04
	(c) Explain working principle of PMMC based measuring instrument.	07
Q.5	(a) Explain working principle of strain gauge.	03
	(b) Discuss principle of LVDT for the measurement of displacement.	04
	(c) Explain the principle of 3-Phase wattmeter for the 3-phase power measurement.	07
	OR	
Q.5	(a) Explain multipliers for moving iron instruments.	03
	(b) Give the definition and classification of errors in broad way.	04
	(c) With the help of block diagram explain working principle of LCR meter.	07
