Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (NEW) EXAMINATION – WINTER 2021

Subject Code:2142503 Date:31/12/2021

Subject Name:Metrology and Measurement

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 metrology. Give objective of metrology.	**03**
	(b)	Give difference between precision and accuracy.	**04**
	(c)	Explain necessity and objectives of metrology.	**07**
Q.2	**(a)**	Differentiate threshold and resolution.	**03**
	(b)	Explain modes of measurement with examples.	**04**
	(c)	Discuss generalized measurement system with sketch.	**07**
		OR	
	(c)	Discuss classification of instruments in detail.	**07**
Q.3	**(a)**	Explain calibration process of vernier calipers.	**03**
	(b)	Explain Taylor's principle of gauge design.	**04**
	(c)	Write a detail note on Vernier micrometer with neat sketch.	**07**
		OR	
Q.3	**(a)**	Explain dial bore gauge with sketch.	**03**
	(b)	Write a note on vernier bevel protractor.	**04**
	(c)	Explain vernier height gauge with neat sketch.	**07**
Q.4	**(a)**	Explain hydraulic dynamometer.	**03**
	(b)	Write a note on angle gauges.	**04**
	(c)	Discuss working principle, construction, applications of Autocollimator with neat sketch.	**07**
		OR	
Q.4	**(a)**	Give classification of tachometers.	**03**
	(b)	Explain stroboscope with neat sketch.	**04**
	(c)	What is a Peltier effect? Explain construction and working of thermocouple.	**07**
Q.5	**(a)**	Give applications of radiation pyrometers.	**03**
	(b)	Classify the screw threads.	**04**
	(c)	Enlist various methods of measuring tooth thickness. Explain any one in detail.	**07**
		OR	
Q.5	**(a)**	Give characteristics of good comparator.	**03**
	(b)	Explain dial indicator with neat sketch.	**04**
	(c)	Explain Tomlinson surface roughness tester with neat sketch.	**07**

****