

Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2141901

Date:01-07-2024

Subject Name:Mechanical Measurement & Metrology

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) Enlist methods of measurement.	03
(b) Distinguish between Primary, Secondary, Tertiary and working standard of length.	04
(c) Explain the procedure to measure angle using Sinbar table and state it's limitations.	07
Q.2 (a) Write a short note on Spirit Level.	03
(b) Explain radiation pyrometer.	04
(c) Sketch and explain the working of a Vernier Height Gauge	07
OR	
(c) Sketch and explain the working of a Vernier Caliper used for internal and external length measurement.	07
Q.3 (a) Write difference between Tolerance and Allowance.	03
(b) What is meant by interchangeability? State its advantages	04
(c) Why we need a Limit Gauge? What are the advantages and limitations of Limit Gauge.	07
OR	
Q.3 (a) List the various characteristics of good comparators.	03
(b) State what is maximum and minimum material limits according to Taylor's principal.	04
(c) Explain with neat sketch the construction and working of Johansson Mikrokator.	07
Q.4 (a) Classify screw threads.	03
(b) Differentiate between optical and mechanical comparator	04
(c) Explain tool maker's microscope with neat sketch	07
OR	
Q.4 (a) Define: (i) Sensitivity (ii) Hysteresis (iii) Repeatability	03
(b) Explain the common errors in threads.	04
(c) Describe the 3-wire method of measuring effective diameter of threads.	07
Q.5 (a) Give comparison between involute and cycloidal gears.	03
(b) Write a short note on Coordinate Measuring Machine.	04
(c) Explain constant chord method for gear tooth measurement.	07
OR	
Q.5 (a) Explain Transducer.	03
(b) State and explain the important elements of measurement	04
(c) What is RTD? Briefly describe construction and working of RTD.	07
