

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2023****Subject Code:3141901****Date:07-07-2023****Subject Name:Mechanical Measurement and 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) Explain role of measurement in Production Engineering. | 03 |
| | (b) Explain the difference between accuracy and precision with neat sketch. | 04 |
| | (c) Enlist types of measuring errors occur during measurement. Explain any three of them with neat sketch | 07 |
| Q.2 | (a) Enlist different types of measurement. | 03 |
| | (b) Explain the role of “Slip gauge” in measurement. | 04 |
| | (c) Write a short note on “Generalized measurement System” | 07 |
| OR | | |
| | (c) Explain in brief, “Thermo couple” with neat sketch. | 07 |
| Q.3 | (a) Enlist different Angular measuring instruments. | 03 |
| | (b) Explain the difference between ‘Hole base System’ and ‘Shaft base system’ with neat sketch. | 04 |
| | (c) Write a short note on Sine bar. | 07 |
| OR | | |
| Q.3 | (a) Sine bar instrument is working on which principle? | 03 |
| | (b) Enlist types of linear measuring instruments. | 04 |
| | (c) What is the function of Dynamometers? Enlist different types of Dynamometers and Explain any one of them with neat sketch | 07 |
| Q.4 | (a) Write down a full form of “LASER”. | 03 |
| | (b) Enlist different types of threads and type of thread measuring instruments. | 04 |
| | (c) Enlist different types of comparators. Explain any one of them with neat sketch. | 07 |
| OR | | |
| Q.4 | (a) Define Tolerance. Why Tolerance provided during design of product? | 03 |
| | (b) What is the function of Bevel protector? | 04 |
| | (c) Explain working principle of Thermometer with neat sketch. | 07 |
| Q.5 | (a) Enlist the temperature measuring instruments. | 03 |
| | (b) What is the function of Radiation Pyrometer? | 04 |
| | (c) Write a short note on “Coordinate Measuring Machines”. | 07 |
| OR | | |
| Q.5 | (a) Enlist types of Gear measuring instruments. | 03 |
| | (b) Write short note on “Tool makers Microscope”. | 04 |
| | (c) Write short note on Dial Indicator with neat sketch. | 07 |
