

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2022–23 Examination

Semester: 4th
Subject Code: 203109261
Subject Name: Metrology and Instrumentation

Date: 20/03/2023
Time: 2:00 pm to 4:30 pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (All are compulsory) (Each of one mark) (15)

1. Mention two functions of threaded assembly.
2. Write full form of CLA.
3. The difference between maximum and minimum limit of any instrument is defined by
(a) Range (b) Span (c) Threshold (d) Resolution
4. Use of Filler gauges.
5. A 0.02mm least count vernier caliper have main scale reading 6 and vernier scale reading 12.
What is the total reading?
6. Surface Finish Measurement Units are _____ & _____.
7. Rope brake dynamometer is use for _____.
8. Coordinate measuring machine is use for _____.
9. Use of clinometers is for _____.
- 10 Use of Slip gauges is for _____.
11. RTD is used to measure:
(a) Temperature (b) Pressure (c) Velocity (d) Force
12. Mercury is use in thermometer as _____.
13. Define Threshold.
14. Which of the following is used to measure RPM of a rotating shaft
(a) Tachometer (b) Tomilson Surface Roughness tester (c) Prony Brake (d) Proving Ring
15. Which of the instrument will measure Precise angle:
(a) Sine Bar (b) Bevel Protractor (c) Combination set

Q.2 Answer the following questions. (Attempt any three) (15)

- A) Describe with sketch the working of Dial Indicator.
- B) Explain with neat sketch working of Stroboscope
- C) Explain: Basics of tolerance system (shaft base & hole base).
- D) Write short notes on proximity sensors

Q.3 A) Describe construction of Micrometer with neat sketch. (07)

- B) How is the gear tooth thickness at PCD measured with Gear Tooth Vernier Caliper? (08)

OR

- B) Explain with neat sketch three wire method of measuring effective diameter of screw thread (08)

Q.4 A) Explain working principle of Linier variable Differential transformer (LVDT) and advantages - (07)
disadvantage of LVDT

OR

- A) Describe the data acquisition system. (07)

- B) Discuss the construction and working of dead weight pressure tester. (08)