

Reg. No.

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B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2023

Fifth Semester

ME16504 – METROLOGY AND MEASUREMENTS*(Mechanical Engineering)***(Regulation 2016)****TIME: 3 HOURS****MAX. MARKS: 100****PART- A (10 x 2 = 20 Marks)**

(Answer all Questions)

1. Differentiate the systematic and random errors.
2. Discuss the need for calibration of measuring instruments.
3. Explain the process of “Wringing” in slip gauges.
4. How the spirit level is used to check the machines?
5. Discuss the advantages of LASER Interferometry over light interferometry.
6. Write short notes on probes used in CMM.
7. Name the different methods used to check the screw thread.
8. How the gear tooth thickness is measured?
9. Discuss the principle of force measurement.
10. How thermocouples differ from thermistors?

PART- B (5 x 16 = 80 Marks)

Marks

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|-------------|------|-------------------------------------------------------------------------------------------------------------------|------|
| 11. (a) | (i) | Distinguish between accuracy and precision of measurement with suitable example. | (8) |
| | (ii) | Define systematic errors and explain the causes of those errors with examples. | (8) |
| (OR) | | | |
| (b) | (i) | With neat sketch explain the generalized measurement system with suitable example. | (8) |
| | (ii) | Explain the working principle of dial gauge with neat diagram. | (8) |
| 12. (a) | (i) | Write short notes on bevel protractor. | (4) |
| | (ii) | Describe the constructional details of autocollimator and explain how it is used to measure the surface flatness. | (12) |

