Reg. No. : | | | | | | | | | | |

Question Paper Code: 36703

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Sixth Semester

Mechanical Engineering

01UME603 - ENGINEERING METROLOGY AND MEASUREMENTS

(Regulation 2013)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Differentiate between accuracy and precision.

2. List any two types of absolute error.

3. Define the term eccentricity.

4. Define sine center.

5. Name the various method of measuring the minor diameter of the thread.

6. Mention the methods of roundness measurement.

7. What is meant by LASER?

8. List the types of CMM.

9. What is meant by thermocouple?

10. Explain the usage of pitot tube.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Discuss the requirements for an instrument to measure accurately.   (8)

    (ii) Explain the need of precision and accuracy in metrology.   (8)

Or

    (b) Explain the dimensional and geometric tolerances.   (16)

12. (a) (i) Explain Tool makers microscope with a neat sketch.   (8)

    (ii) Explain the procedure of angular measurement using a sine bar.   (8)

Or

    (b) Explain with a neat sketch the pneumatic and hydraulic comparators with neat sketches.   (16)

13. (a) (i) Draw and explain the measurement of effective diameter of a screw thread using one wire and three wires methods.   (8)

    (ii) Explain Gear tooth vernier method of measuring the gear tooth thickness.   (8)

Or

    (b) Explain the concept of straightness, flatness and roundness measurements.   (16)

14. (a) Explain the principles of measurement using laser interferometer.   (16)

Or

    (b) Explain the coordinate measuring machine in detail.   (16)

15. (a) Explain briefly the various methods of measuring torque.   (16)

Or

    (b) Explain the construction and working of thermocouple and pyrometer.   (16)

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