

CBCS SCHEME

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Third Semester B.E. Degree Examination, July/August 2021 Mechanical Measurements and Metrology

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. What is Measurement? Brief the significance of the measurements. (05 Marks)
b. Explain the concept of Accuracy and Precision with a suitable example. (05 Marks)
c. Differentiate the Line standard with End standards. (05 Marks)
d. A bar has to be calibrate having an actual length of 800.0006mm. It is used in the calibrate on two bars A and B, each having the length of 400mm. When compared with the bar the length of A and B bars was found to be shorter by 0.0003mm. In comparing the bar A was bound 0.0005mm longer than B. Find the actual length of A and B. (05 Marks)
- 2 a. Define the following : i) Sensitivity ii) Calibration iii) Threshold
iv) Hysteresis v) Error. (10 Marks)
b. With a neat sketch, explain the International Prototype meter. (10 Marks)
- 3 a. List the important characteristics of a Comparator. (05 Marks)
b. With a neat sketch, explain the working of any one type of Mechanical Comparator. (10 Marks)
c. Write a note on Angle gauges. (05 Marks)
- 4 a. Explain the principal of LVDT used in Electrical comparator. (10 Marks)
b. With a neat sketch, explain the working of an Solex Pneumatic Comparator. (10 Marks)
- 5 a. Explain the Primary and Secondary transducers. (05 Marks)
b. Explain the mechanical type pressure sensitive elements. (10 Marks)
c. List the advantages of Electrical transducers. (05 Marks)
- 6 a. With a neat sketch, explain the working of a Clinometer. (10 Marks)
b. Explain the principles of Auto collimator. (05 Marks)
c. Write a note on Optical flats. (05 Marks)
- 7 a. With a neat sketch, explain the platform balance. (10 Marks)
b. Explain the working of an X – Y plotters with a sketch. (10 Marks)
- 8 a. Write a note on the following : i) Ultra – Violet recorder ii) Servo recorder. (10 Marks)
b. With a neat sketch, explain the Prony brake dynamometer. (10 Marks)
- 9 a. Explain the Hole basis and Shaft basis system. (05 Marks)
b. What is the meaning of Geometric tolerance and Position tolerance? (05 Marks)
c. With a neat sketch, explain the Optical pyrometer. (10 Marks)
- 10 Explain the following with respect to Strain measurements :
a. Strain gauge b. Gauge factor c. Mounting of strain gauges
d. Strain gauge materials e. Methods of strain measurements. (20 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.