

CBCS Scheme

15MR36

USN

--	--	--	--	--	--	--	--	--	--

Third Semester B.E. Degree Examination, Dec.2016/Jan.2017 Mechanical Measurements and Metrology

Max. Marks: 80

Time: 3 hrs.

Note: Answer any FIVE full questions,
choosing ONE full question from each module.

Module-1

- 1 a. List the objectives and metrology. (06 Marks)
b. Explain with an example line standard and end standard. (06 Marks)
c. Build up the slip gauge to measure a length of 49.3825 mm using M112 set. Use two protector slip gauge of 2.5 mm each. (04 Marks)

OR

- 2 a. Define meter as today. Sketch and explain international prototype meter. (07 Marks)
b. Sketch and explain construction and working of sine bar with neat sketch. (05 Marks)
c. Build up the angle to measure an angle of $33^{\circ} 10' 42''$. (04 Marks)

Module-2

- 3 a. Sketch and explain Johnson microkator. (06 Marks)
b. Define fit. Sketch and explain clearance fit. (06 Marks)
c. Write the classification of comparators. (04 Marks)

OR

- 4 a. Sketch and explain plug gauges. (05 Marks)
b. Sketch and explain LVDT. (06 Marks)
c. What are the advantages and disadvantages of pneumatic comparator. (05 Marks)

Module-3

- 5 a. Sketch and explain two wire method of measuring effective diameter of screw thread. (06 Marks)
b. How do you measure tooth thickness of a spur gear using gear tooth vernier caliper. (06 Marks)
c. Define module and lead. (04 Marks)

OR

- 6 a. Sketch and explain toolmakers microscope. (08 Marks)
b. Define the following : i) Addendum ii) Dedendum iii) Pitch iv) Pressure angle. (08 Marks)

Module-4

- 7 a. Define the following : i) Accuracy ii) Hysteresis iii) Sensitivity. (06 Marks)
b. Sketch and explain resistive transducer. (05 Marks)
c. What are the mechanical inherent problems that occur in mechanical modifying devices? (05 Marks)

Important Note: 1. For completing your answers compulsorily draw diagonal cross lines on the remaining blank pages. 2. Any revealing of identification, appeal to evaluator and not equating answer by 4+X=50 will be treated as malpractice.

OR

- 8 a. Sketch and explain Ballast circuit. (05 Marks)
b. What are the advantages of electrical transducer elements? (04 Marks)
c. Write the classification of different types of errors. Sketch and explain S – Y plotters. (07 Marks)

Module-5

- 9 a. List the different types of dynamometers. Sketch and explain Proncy brake. (07 Marks)
b. Sketch and explain McLead gauge. (06 Marks)
c. Write a note on bonding materials. (03 Marks)

OR

- 10 a. Sketch and explain wheat stone bridge circuit arrangement for strain measurement. (06 Marks)
b. Sketch and explain Pirani gauge. (05 Marks)
c. State the laws of thermocouple. (05 Marks)

* * * * *