CBCS Scheme

USN | | | | | | | | | | |

15ME46B

Fourth Semester B.E. Degree Examination, June/July 2017
Mechanical Measurements and Metrology

Time: 3 hrs. Max. Marks: 80

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

Module-1

1 a. Explain with a sketch, the international prototype meter. **(08 Marks)**

b. Briefly explain: i) Wringing procedure ii) Principle of sine bar. **(08 Marks)**

OR

2 a. Explain the principle of Auto-collimeter with a neat sketch and list advantages of wavelength standards. **(08 Marks)**

b. Show the arrangement of minimum angle gauges required to obtain the following angles.
i) 32°36′24″ ii) 122°30′0″ **(08 Marks)**

Module-2

3 a. Define the terms : i) Limits ii) Fits iii) Tolerance. **(06 Marks)**

b. Illustrate the following types of gauges
i) Snap gauge ii) Ring gauge iii) Plain plug gauge. **(10 Marks)**

OR

4 a. Explain with a neat sketch, the working of SOLEX COMPARATOR. **(08 Marks)**

b. Differentiate measuring instruments, gauges and comparators. **(08 Marks)**

Module-3

5 a. With the setup, explain how effective diameter of a screw thread is measured using 3 wire method. **(08 Marks)**

b. Describe constant chord method to find tooth thickness. **(08 Marks)**

OR

6 a. List the advantages of Lasers and explain in detail any one laser interferometer. **(08 Marks)**

b. Sketch and explain a CMM. What are the various applications of CMM? **(08 Marks)**

Module-4

7 a. Briefly explain the following terms:
i) System response and time delay ii) Accuracy and error iii) Repeatability **(08 Marks)**

b. What is the necessity of modifying devices? Enlist the advantages of electrical modifying devices. **(08 Marks)**

OR

8 a. Explain with a neat sketch Ballast circuit. **(06 Marks)**

b. What are terminating devices? Explain in detail oscillograph. **(10 Marks)**

Module-5

9 a. Explain the working of Pirani gauge with a neat sketch. **(08 Marks)**

b. Explain with neat sketch Analytical Balance to measure unknown faces. **(08 Marks)**

OR

10 a. What is a thermocouple? Explain the Law's of thermocouple. **(08 Marks)**

b. Sketch and explain total Radiation pyrometers. **(08 Marks)**

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