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

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2012

Fourth Semester

Manufacturing Engineering

MF 9252 –ENGINEERING METROLOGY

(Regulation 2008)

Time: Three hours Maximum: 100 Marks

ANSWER ALL THE QUESTIONS

PART A – (10 x 2 = 20 marks)

1. Define precision.
2. Write short notes on 'Standards'.
3. List any 4 disadvantages of mechanical comparators.
4. Mention few applications of bevel protractors.
5. Define 'major diameter' of a screw thread.
6. Explain few areas that have good scope for roundness checking.
7. What are the applications of optical microscopes in metrology?
8. What are the uses of laser?
9. What is computer aided inspection?
10. Distinguish between nano-particles and nano-bulks

PART B – (5 x 16 = 80 marks)

11. a.i. Explain briefly various types dimensional and form tolerance in use. (8)
    ii. Discuss elaborately on the maintenance of environmental conditions in a metrology laboratory. (8)

12. a.i. Describe the principle, construction and working of a Meeter optical comparator with a neat sketch. (10)
    ii. Write detailed notes on progressive and positional limit gauges. (6)

    (OR)

    b.i. Describe the construction and working of an angle dekkor with a neat sketch. (8)
    ii. Explain with neat sketches the variants of sine bars and their applications. (8)

13.a.Explain with neat sketches how the gear tooth vernier caliper is used for checking the chordal thickness of a gear tooth. (16)

(OR)

b. Explain the procedure for checking the flatness of a component using an autocollimator. (16)

14.a. Explain the construction and working of a heterodyne laser interferometer with a neat sketch. (16)

(OR)

b. Explain how laser interferometry is used in the testing of machine tools. (16)

15.a. Describe the design features of various configurations of bridge type CMMs. (16)

(OR)

b. Explain the four important phases of machine vision system. (16)