Roll. No. | | | | | | | | |

B.E. / B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV/DEC 2011

MANUFACTURING ENGINEERING BRANCH

FOURTH SEMESTER

MF9252 ENGINEERING METROLOGY

(REGULATIONS 2008)

Durations: 3hr Max Mark: 100

Answer ALL Questions

Part – A (10 X 2 = 20Marks)

1. Define nominal size.
2. List any 4 general precautions to be followed in handling metrological equipments.
3. What are the advantages of optical comparators?
4. State Taylor's principle of gauge design.
5. Mention any 4 major applications of screw thread.
6. Write short notes on errors in circularity.
7. What is the purpose of retroreflectors?
8. Mention some applications of laser interferometry.
9. Justify which type of CMMs is best suited for larger work pieces like automobiles?
10. What is computer aided inspection?

Part – B (5 X 16 = 80Marks)

11. i. Distinguish between precision and accuracy. (6)
    ii. Explain the care to be taken in handling and maintaining of instruments. (10)

12.a. Describe the principle, construction and working of Sigma mechanical comparator. (16)

(OR)

b. Explain the precautionary measures to be taken at various stages of using slip gauges.(16)

13.a.i.With a neat sketch explain how you will measure the major diameter of external and internal screw threads. (8)

ii.Explain with neat sketches how a gear tooth vernier caliper is used for measuring the chordal thickness of a gear tooth. (8)

(OR)

b. Explain with suitable sketches the procedure for measuring the straightness of a component using autocollimator. (16)

14.a. Write detailed notes on: i. precision instruments based on laser. (8)

ii. Interference micrometer. (8)

(OR)

b. Explain with a neat sketch the principle, construction and working of a ac laser interferometer. (16)

15.a. Explain with suitable diagrams the construction and working of various types of horizontal arm CMMs. (16)

(OR)

b.i. Describe the stages involved in machine vision system. (10)

ii. Write detailed notes on nano-metrology. (6)