



Code No. : 5204/S

FACULTY OF ENGINEERING
B.E. 4/4 (Mech./Prod.) I Semester (Suppl.) Examination, June 2012
METROLOGY AND INSTRUMENTATION

Time : 3 Hours]

[Max. Marks : 75

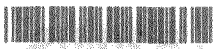
Note : Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1. Distinguish between accuracy and Precision.
2. Explain briefly about Precision polygon.
3. What are the applications of Co-ordinate Measuring Machines ? (C.M.M.)
4. Differentiate between roughness and waviness.
5. Distinguish between Tolerance and allowance.
6. Explain spur gear nomenclature with a sketch.
7. Explain principle and use of a spirit level.
8. State and explain the laws of thermoelectricity.
9. Explain the principle of Piezoelectric load cell.
10. Explain Ambient temperature compensation.

PART – B (50 Marks)

11. a) Explain principle, operation and limitations of Auto collimator. 5
- b) Discuss the applications of set jet gauge heads. 5
12. a) Explain roundness measurement with Talyround. 5
- b) Explain surface roughness measurement by Profilometer with a sketch. 5



13. a) How is effective diameter of a screw thread measured using 3-wire method? 5
b) Distinguish between complete interchangeability and selective assembly. 5
14. a) Discuss the classification of errors in instrumentation systems. 5
b) Explain wire and foil type resistance strain gauges. 5
15. a) Explain principle, operation of Bourdon pressure gauge with a neat sketch. 5
b) Explain the role of protection tubes and extension wires in thermo couples. 5
16. a) Explain the working of a Pirani gauge with a neat sketch. 5
b) Explain in brief about the bonding procedure of strain gauges. 5
17. Explain the following : (2.5×4=10)
a) Tomlinson gauges
b) Elements of Instrumentation system
c) Chart gauges
d) Dial Indicator.