



Code No. : 6202/O/S

**FACULTY OF ENGINEERING**  
**B.E. 4/4 (Mech./Prod./AE) (I Semester) (Old) Examination, July 2014**  
**METROLOGY AND INSTRUMENTATION**

Time : 3 Hours]

[Max. Marks : 75

**Note :** Answer **all** questions of Part – **A** and answer **any five** questions from Part – **B**.

**PART – A**

**(25 Marks)**

1. Compare line standards and end standards.
2. Define comparator and name different types of comparators used in inspection.
3. What are the applications of Tool maker's microscope ?
4. Differentiate between straightness and flatness.
5. Distinguish hole basis and shaft basis system of limits.
6. Define Fit and explain various types of Fits.
7. Define the gauge factor of a strain gauge and derive the expression.
8. Write short notes on proving ring.
9. Discuss the types of materials used in thermocouples.
10. Define pressure and name the various methods of pressure measurement.

**PART – B**

**(5×10=50 Marks)**

11. a) Explain the working of Back pressure type pneumatic comparator with a neat sketch. 5
- b) What are the common materials and working processes used in the manufacture of slip gauges ? 5
12. a) With a neat sketch describe the surface roughness measurement by Taylor Hobson Talysurf. 5
- b) Explain the working of a optical projector with a neat sketch and give its applications. 5



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13. a) State and explain Taylor's principle for plain limit gauges with examples. 5  
b) Describe the Parkinson gear tester with a sketch. 5
14. a) Distinguish between static and dynamic characteristics of instrumentation. 5  
b) Describe the construction and working of LVDT. 5
15. a) Explain principle, operation of Bulk modulus gauge. 5  
b) Explain Seismic transducer with a sketch. 5
16. a) Discuss general geometrical tests for testing machine tools. 5  
b) Explain the working principle, operation and uses of Gear tooth vernier with a sketch. 5
17. Explain the following : (2.5×4=10)  
a) Sinebar  
b) Coordinate Measuring machine  
c) Use of plug, Ring and Snap gauges  
d) Strain gauge Rasette.
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