A – 2814

Reg. No. : ....

Name : ....

Sixth Semester B.Tech. Degree Examination, May 2016
(2008 Scheme)
08.601 : METROLOGY AND INSTRUMENTATION (MP)

Time : 3 Hours　　　　　　　　　　　　　　　　　　　　　　　　　Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.　　　　　　**(10×4=40 Marks)**

1. What are the different grades of tolerance ? Give their applications.

2. Explain Taylor's principles in designing of Limit gauges.

3. Write notes on Angle gauges and Bevel protractors.

4. Explain hole based system and shaft based system.

5. Explain about comparators and mention its types.

6. State the principles of Interferometry.

7. Distinguish between roughness and waviness.

8. Classify the types of transducers.

9. Explain Gaussian and normal error distribution.

10. Discuss the types and applications of resistance stain gauges.

PART – B

Answer **one** full question from **each** Module.　　　　　　　　　　**(3×20=60 Marks)**

Module – I

11. a) Explain the different types of limit gauges.

　　b) What is optical dividing head ? Explain its working principles.

OR

12. a) Explain with a neat diagram the essential conditions of interference and clearance.

   b) Enumerate the types of plug gauges and draw neat sketches of any three of them by stating their applications.

Module – II

13. a) Explain how straightness can be measured by using Autocollimator.

   b) What is meant by effective diameter of a screw thread ? Explain with a neat sketch how it can be measured using 3-wire method.

OR

14. a) Describe any one of the mechanical comparator. Distinguish between mechanical and optical-mechanical comparator.

   b) Explain the various methods of surface roughness measurement.

Module – III

15. a) What is a transducer ? Define active and passive transducers with examples and state the role of each in measuring system.

   b) Discuss the construction and working of Wheat-Stone's bridge circuit.

OR

16. a) Explain the working of an optical strain gauge.

   b) Describe how limiting errors in y can be computed from the measurement of two quantities u and v, each having limiting errors when (i) $y = u + v$, and (ii) $y = u/v$.