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**Question Paper Code : 57569**

**B.E./B. Tech. DEGREE EXAMINATION, MAY/JUNE 2016**

**Fourth Semester**

**Mechatronics Engineering**

**ME 6504 – METROLOGY AND MEASUREMENTS**

**(Common to Materials Science and Engineering)**

**(Regulations 2013)**

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**PART – A (10 × 2 = 20 Marks)**

1. What are the factors affecting the inherent characteristics of measuring instruments ?
2. Explain Line and End standards.
3. List out any four angular measuring instruments used in metrology.
4. What are the advantages of pneumatic comparator ?
5. What are the different types of geometrical tests conducted on machine tools ?
6. Write the advantages of machine vision system.
7. What is best size of wire ?
8. What are the factors affecting surface roughness ?
9. What are load cells ?
10. Mention the principle involved in bimetallic strip.

**PART – B (5 × 16 = 80 Marks)**

11. (a) Explain various causes of errors.

**OR**

- (b) Elaborate on different methods of measurement.

12. (a) Explain Johansson Microkator and Sigma Comparator with neat sketches.

**OR**

- (b) Discuss about various types of Limit Gauges.

13. (a) Explain the working of Laser Interferometer.

**OR**

- (b) Explain different types of CMM and their constructional features.

14. (a) Define various terminologies of screw thread with suitable diagrams.

**OR**

- (b) Derive the expression for finding the effective diameter by three wire method.

15. (a) Discuss about any two types of measurement of temperature.

**OR**

- (b) Explain the working of rotameter and orificemeter with neat sketches.