



B.E/B.Tech (Full-Time) DEGREE END SEMESTER EXAMINATIONS, NOV/DEC 2011
MECHANICAL ENGINEERING BRANCH
FIFTH SEMSTER-REGULATIONS 2004

ME 375 –ENGINEERING METROLOGY & MEASUREMENTS

Time: 3Hr

Max.Mark:100

Answer ALL Questions

Part –A (10x2=20 Marks)

1. List down some of the characteristics of Systematic error.
2. Mention some of the limitations of end standards
3. Distinguish between the terms tolerance and allowance.
4. What do you mean by selective assembly?
5. Write short notes on the advantages of laser alignment.
6. Mention some of the advantages of non contact probes used in a CMM.
7. Define: Flatness.
8. What do you mean by lay?
9. State the importance of calibration.
10. What do you mean by readability of a measuring instrument?

Part – B (5x16 = 80 Marks)

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| 11 | Describe the following types of errors and state how they can be taken care of
(i) Effect of supports (ii) Effect of alignment.
(iii) Error due to contact pressure (iv) Error due to dust. | 16 |
| 12a | What is clinometer? Describe how it can be Used for measurement and setting of angles. Illustrate your answer with sketches
(OR) | 16 |
| 12b | Explain the use of sine bar for measuring angle of a taper plug gauge with the help of a neat sketch. | |
| 13a | With the help of a neat diagram explain the working principle of Horizontal arm type CMM 's .State their advantages over other type of CMM's.
(OR) | 16 |
| 13b | Describe in detail of the function and applications of machine vision system. | |

14a Describe with sketches two wire method of measuring the effective diameter of a screw thread. 16

(OR)

14b Describe a gear tooth vernier caliper and explain its use for checking the tooth thickness of a gear.

15a Describe the following in connection with force measurement 16

- (i) Proving rings (8 marks)
- (ii) Hydraulic load cells (8 marks)

15b Describe the following in connection with flow measurement 16

- (i) Orificemeter (8 marks)
- (ii) Rotometer (8 marks)