B.Tech. MECHANICAL ENGINEERING (BTMEVI)

Term-End Examination

December, 2013

BIME-019 : METROLOGY

00271

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt **any five** questions. All questions carry **equal** marks.*

1. (a) What are random errors ? State the   **7+7**
        common causes for their occurrence.
    (b) Discuss briefly the following :
        (i)   primary standards
        (ii) secondary standards
        (iii) Working standards.

2. (a) What are angle gauges ? How are they   **6+8**
        used ?
    (b) Define the following :
        (i)   Nominal size
        (ii) Basic dimension
        (iii) Tolerance
        (iv) Fit

3. (a) Explain briefly the following :   **7+7**
        (i)   Primary texture
        (ii) secondary texture
    (b) Explain briefly the following microscopes :
        (i)   Tool maker's microscope
        (ii) Workshop microscope

4. (a) Describe "base tangent method" used for measuring gear tooth thickness. 7+7
   (b) Explain any two of the following :
       (i) Plug screw gauges
       (ii) Ring screw gauges
       (iii) Thread snap gauges

5. (a) Write short notes on the following : 7+7
       (i) Chain sampling plan
       (ii) multiple sampling plan
   (b) What are control charts for attributes ? Explain any one of them.

6. (a) What are the different types of micro meters? Explain any one of them. 7+7
   (b) Explain three wire method of measuring effective diameter of a screw thread.

7. (a) What is a VERNIER height guage ? Explain its principle of working. 7+7
   (b) How can taper holes and taper shafts be checked ?

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