Code No.: 9A03603/R09

B.Tech. III Year II Semester Regular and Supplementary Examinations

Set-1

April/May - 2013

METROLOGY

(Mechanical Engineering)

Time: 3 Hours   Max. Marks: 70

*Answer any **FIVE** Questions*

*All Questions carry **Equal** Marks*

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1. (a)   Discuss the effect of temperature on the application of limits.

    (b)   Discuss how tolerance and geometry are related.

2.   Give an account of the two material standards of length. What are the disadvantages with them? How are those problems overcome with wavelength standards?

3. (a)   How will you calibrate a given straight edge? Indicate the various steps involved explaining the method of calculation.

    (b)   How will you use the calibrated straight edge for determining the straightness errors of another component?

4.   Why is it not possible to produce a perfectly smooth surface by machining process? Discuss the causes.

5. (a)   Name the important dimensions of V-thread which control the fitting of threads.

    (b)   Explain why it is essential to measure/gauge the different elements of any screw thread.

6.   Describe the various alignments tests with sketches on pillar type drilling machine.

7. (a)   What elements of spur gear should be tested to confirm on pillar type drilling efficiency?

    (b)   Describe suitable methods for testing the important geometric features of a ground 'master' gear.

8.   (a)   Explain the various surface treatments process.

      (b)   Write their merits and demerits of each process.