

**DIPLOMA - VIEP - MECHANICAL
ENGINEERING (DMEVI)**

Term-End Examination

December, 2016

BIME-027 : METROLOGY AND QUALITY CONTROL

Time : 2 hours

Maximum Marks : 70

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

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1. (a) Define the following terms : 7
- (i) Nominal Size
 - (ii) Upper Limit
 - (iii) Tolerance
 - (iv) Fit
- (b) Explain the working principle of sine bar for angular measurement. 7
2. (a) Explain the calibration method of slip gauges. 7
- (b) Describe the working of a profile projector. Give its applications. 7

3. (a) State briefly, why comparators are used in engineering practice. Describe the working principle of a sigma comparator with neat sketch. 7
- (b) What is meant by a gear tooth thickness ? How do you measure it with the help of a gear tooth vernier ? 7
4. (a) Why is the assessment of surface texture important ? Describe the instrument used for obtaining a graphical record of texture. 7
- (b) Explain the formation of interference fringes when light falls on an optical flat resting on a lapped surface. 7
5. (a) What is the concept of quality circle ? Describe the basic organization structure of quality circle. 7
- (b) What is the difference between defect and defective ? Outline the theory underlying control charts for defects. 7
6. (a) Define the term 'Quality'. State the various factors which affect the product quality. 7
- (b) Explain different types of sampling plans used in the industry. Differentiate between single sampling and double sampling plans. 7

7. Write short notes on the following :

$$4 \times 3 \frac{1}{2} = 14$$

- (a) TQM**
 - (b) AQL**
 - (c) Automatic Inspection System**
 - (d) Application of Laser in Measurements**
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