

DIPLOMA VIEP MECHANICAL ENGINEERING

01064

Term-End Examination

June, 2014

BIME-027 : METROLOGY AND QUALITY CONTROL

Time : 2 hours

Maximum Marks : 70

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- Note :** (i) *Attempt any five questions.*
(ii) *All questions carry equal marks.*
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1. (a) Define any four : 7
(i) Straightness
(ii) Flatness
(iii) Squareness
(iv) Roundness
(v) Cylindricity
(vi) Concentricity
- (b) Show by means of a sketch, the design of a sine bar. Explain why it is not preferred to use a sine bar for measuring angle more than 45°. 7
2. (a) Name the various types of fits used for purpose of assembly of machine parts with neat sketch. Describe any one of them in detail. 7
- (b) What do you understand by interchangeable manufacture ? Briefly discuss about selective assembly. 7

3. (a) State briefly, why comparators are used in engineering practice. Describe the working principle of Sigma Comparator. 7
- (b) What is meant by the term "magnification" as applied to a mechanical comparator? Explain the methods of magnification used in comparators. 7
4. (a) Define roughness. Why is the assessment of surface texture important? 7
- (b) Describe **any two** in the following terms : 7
- (i) Lay
 - (ii) Sampling length
 - (iii) Primary texture
 - (iv) Waviness
5. (a) Explain the formation of interference fringes when light falls on an optical flat resting on a lapped surface. 7
- (b) Define the term Quality. State the various factors which affect the product quality. 7
6. (a) What is total quality management? Explain its elements. 7
- (b) Briefly discuss about quality assurance function. State its advantages. 7
7. (a) What do you mean by acceptance sampling? State and explain the advantages and limitations of acceptance sampling over 100% inspection. 7
- (b) Explain different types of sampling plans used in the industry. Differentiate between Single sampling and Double sampling plan. 7
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