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**Question Paper Code: 36703**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Sixth Semester

Mechanical Engineering

01UME603 - ENGINEERING METROLOGY AND MEASUREMENTS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What is meant by sensitivity?
2. Define the term 'calibration'.
3. Name any four non-dimensional gauges.
4. Define sine center.
5. Name the various method of measuring the minor diameter of the thread.
6. Mention the methods of roundness measurement.
7. Name any four types of interferometer.
8. State the differences between crest and trough.
9. Define gauge factor.
10. State any four inferential type of flow meter.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) What is meant by static and dynamic responses? (8)  
(ii) What do you understand by systematic error and random error? (8)

Or

- (b) Explain the dimensional and geometric tolerances. (16)

12. (a) (i) Discuss briefly the construction and working of height gauge with a neat sketch. (8)  
(ii) Explain the construction and working principle of Limit Gauge with sketch. (8)

Or

- (b) Explain with a neat sketch the pneumatic and hydraulic comparators with neat sketches. (16)

13. (a) Describe the constant chord method and base tangent method for measuring gear teeth with neat sketches. (16)

Or

- (b) Explain the concept of straightness, flatness and roundness measurements. (16)

14. (a) Explain the principles of measurement using laser interferometer. (16)

Or

- (b) Explain the principle, construction and types of CMM. (16)

15. (a) Explain with a neat sketch of construction and working of venturimeter and rotameter. (16)

Or

- (b) Explain the construction and working of thermocouple and pyrometer. (16)