

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 3991

Roll No.

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B.Tech.

(SEM. IV) THEORY EXAMINATION 2010-11

MEASUREMENT & METROLOGY

Time : 2 Hours

Total Marks : 50

Note : (1) Q. 1 is compulsory.
(2) Assume suitable data, if necessary.

1. Attempt any **two** parts : **(7×2=14)**
 - (a) Explain the utility of transducer in measurement.
 - (b) Discuss the role of sensors in measuring instruments. Why signal processing is required during measurement ?
 - (c) Differentiate the following :
 - (i) Instrumental errors and environment error.
 - (ii) Observation error and operational error.

2. Attempt any **two** parts : **(6×2=12)**
 - (a) Explain the working principle of bellows pressure gauge with a neat sketch.
 - (b) Why temperature compensation in strain gauges are required ? How it is accounted ?
 - (c) Why calibration is required for resistance strain gauge ?
State the advantages of unbounded wire strain gauge.

3. Attempt any **two** parts : (6×2=12)
- (a) Write the characteristics of line standards and end standards.
 - (b) With the help of a neat sketch explain the working of spirit level for angular measurement.
 - (c) Explain the vernier principle for linear measurement.

4. Attempt any **two** parts : (6×2=12)
- (a) Discuss the construction and working of talysurf roughness tester.
 - (b) Explain in brief, the interference method for evaluation of surface texture. How accuracy of interference method can be increased ?
 - (c) Explain the straightness measurement method by auto-collimator.