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Total No. of Questions : 09

B.Tech. (AE) (Sem.–6th)
MEASUREMENTS AND INSTRUMENTATION
Subject Code : AE-306
Paper ID : [A0721]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :
1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

SECTION-A

l. Write briefly :

i) What is meant by arithmetic mean?

ii) What are different source of errors in measurements?

iii) Explain dead zone.

iv) Define sensitivity.

v) How transducers are classified?

vi) What is the function of quantity meter?

vii) What is a bimetallic thermometer?

viii) Define gauge factor of a resistance strain gauge.

ix) What is a hydraulic load cell?

x) What are automotive sensors?

SECTION-B

2. Distinguish between threshold and resolution.

3. Explain the importance of statistical analysis in measurements.

4. Why it is desirable that piezo electric transducers should be used for the measurement of dynamic quantity only? Explain.

5. Explain a gauge for low pressure measurement.

6. Sketch a thermocouple circuit showing the important details.

SECTION-C

7. Sketch a Pitot tube and show how its readings may be applied to determine the velocity of flow stream.

8. What is temperature compensation and how it is achieved when using bonded strain gauge for the measurement of axial thrust?

9. Explain a Linearly Variable Differential Transformer.