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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Electronics &amp; Electrical) (2011 Onwards OE) (Sem.-6)

**TRANSDUCERS AND SIGNAL CONDITIONING**

Subject Code : BTEEE-OPD

Paper ID : [A2327]

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 have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A****1. Answer briefly :**

- a. Discuss the principle of photoelectric transducer.
- b. Explain the principle of Piezo electric transducer.
- c. What do you mean by PH value? Explain.
- d. What do you mean by slew rate? Explain.
- e. List the advantages of instrumentation amplifier.
- f. Comment upon the statement and Justify your answer "*CRO is a voltage sensitive device*".
- g. Why multiplexing is required in data transmission? Explain.
- h. What is the importance of S/H circuit? Explain.
- i. List the advantages of magnetic tape recording.
- j. What do you mean by data acquisition system? Explain.

### SECTION-B

2. Discuss in detail the basic requirements of a transducer.
3. Explain with suitable diagrams how does an OPAMP function as :
  - a. an integrator
  - b. a differentiator
4. Describe the different types of channels used for telemetry. Explain their advantages and disadvantages.
5. Explain the functioning of a integrating type digital voltmeter. Support your answer with waveforms, if required.
6. Explain multi-channel data acquisition system in detail.

### SECTION C

7. Differentiate between the following transducer by citing suitable examples :
  - a. Transducers and inverse transducers
  - b. Active and passive
  - c. Primary and secondary
  - d. Analog and digital
8.
  - a. Derive the expression for output voltage of a differential amplifier. Describe the advantages of a differential amplifier as regards noise immunity and drift immunity.
  - b. Discuss Time division multiplexing and its characteristics as applied to telemetry.
9. Explain the following :
  - a. Strip chart recorders.
  - b. Successive approximation analog to digital converter.