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Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech. (Electronics Engg.) (OE 2012 Onwards)/
(Electrical & Electronics) (OE 2013 Batch)
(Sem.-6)**

TRANSDUCERS AND SIGNAL CONDITIONING

Subject Code : BTEEE-OPD

M.Code : 72841

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS 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. What do you mean by gauge pressure? Explain.
- c. What do you mean by humidity value? Explain.
- d. What do you mean by bandwidth? Explain.
- e. List the limitations of operational amplifier.
- f. What do you mean by term signal conditioning? Why is it required? Explain.
- g. What do you mean by time division multiplexing? Explain.
- h. What is the importance of S/H circuit? Explain.
- i. List the advantages of digital display.
- j. What do you mean by data conversion? Explain.

SECTION-B

2. Define a transducer. Discuss in detail the basic requirements of a transducer.
3. Derive the expression for the closed loop gain of an operational amplifier used in
 - a. Inverting mode
 - b. Non-inverting mode
4. Discuss frequency division multiplexing and its characteristics as applied to telemetry.
5. Explain the different components and working of magnetic tape recorders.
6. Discuss in detail multi-channel data acquisition system.

SECTION-C

7. Explain the basic principles of following transducers :
 - a. Resistive
 - b. Capacitive
 - c. Thermoelectric
 - d. Piezoelectric
 - e. Electromechanical
8.
 - a. Draw and explain the circuit of a differential amplifier. Also derive the expression for its output voltage.
 - b. Define telemetry. Explain the different types of channels used for telemetry.
9. Explain the following :
 - a. Voltage to current converter
 - b. Digital input output devices

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.