Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Electrical & Electronics Engg.)(2013 Onwards)/(Electronics & Electrical Engg.) (2013 to 2017 Batch)

(Sem.–4)

TRANSDUCERS AND SIGNAL CONDITIONING

Subject Code : BTEEE-402

M.Code : 72386

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) What do you mean by primary detectors? Explain.

b) Explain the principle of Hall Effect transducers.

c) What do you mean by voltage follower? Discuss its significance.

d) What do you mean by CMRR in Op-amp? Explain.

e) Discuss the principle of CRO.

f) Write down the advantages and disadvantages of magnetic tape recorders.

g) What is telemetry? What is the need of it? Explain.

h) What is the need of signal conditioning? Discuss.

i) Write down the ideal characteristics of OP-AMP.

j) What is the need of multiplexer? Explain.

SECTION-B

2. What is a transducer? Discuss the basic requirements of a transducer in detail.

3. Derive the expression for the closed loop gain of an operational amplifier used in the inverting and non-inverting modes. Describe the assumption made, if any.

4. Describe the different types of channels used for telemetry. Explain their advantages and disadvantages.

5. Discuss the various analog and digital display methods in brief.

6. What is the need of data acquisition system? Discuss Multi channel data acquisition system.

SECTION-C

7. Describe the construction and principle of working of capacitive and photoelectric transducers.

8. a) Describe the construction and working of a sample and hold circuit.

   b) Explain the time division multiplexing and its characteristics in detail.

9. Explain the following :

   a) Instrumentation amplifier

   b) Digital Voltmeter

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.