

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Electrical & Electronics Engg.) / (Electronics & Electrical Engg.) (Sem.-4)

TRANSDUCERS AND SIGNAL CONDITIONING

Subject Code : BTEEE-402

M.Code : 72386

Date of Examination : 12-07-22

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) List the various transducers used for the measurement of flow.
- c) Compare various transducers used for the measurement of temperature.
- d) What do you mean by hysteresis? Explain.
- e) Explain the term slew rate *w.r.t.* Op-Amps.
- f) List the advantages of instrumentation amplifier.
- g) Discuss the need of signal conditioning.
- h) Define the term resolution *w.r.t.* digital displays.
- i) Define the term '*telemetry*' and explain why is necessary to use it in an instrumentation system.
- j) What is the need of A/D converter? Explain.

SECTION-B

- 2 Describe with the help of neat diagrams, the mechanical devices used as primary detectors.
- 3 Derive the expression for output voltage of a differential amplifier. Describe the advantages of a differential amplifier With regards to noise immunity and drift immunity.
- 4 What is an XY recorder? Explain its working. How do you distinguish it from a X-t or a Y-T recorder?
- 5 Define time division multiplexing and frequency division multiplexing as applied to telemetry. Explain any one of these in detail.
- 6 Why data acquisition is required? Discuss Multi channel data acquisition system in detail.

SECTION-C

7. Discuss the basic principles of following transducers :
 - a) Inductive
 - b) Piezoelectric
 - c) Hall effect
 - d) Capacitive
 - e) Thermoelectric.
8. Discuss :
 - a) Inverting and non-inverting amplifier.
 - b) Peak detector and phase shifter.
9. Explain the following :
 - a) Single channel DAS
 - b) CRO

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.