

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EIE) (2011 & Onwards) (Sem.-6)
INSTRUMENTATION SYSTEM DESIGN

Subject Code : EI-302/401

M.Code : 58036

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

Q1. Answer briefly :

- a) Classify different types of transducer based upon their working principle.
- b) Define pressure. List the vacuum type pressure transducers.
- c) List the transducers used to measure acceleration.
- d) What is thermistor? State the advantage and disadvantages.
- e) Differentiate between transducer and inverse transducer.
- f) Define pass band filter.
- g) List the static characteristics of transducers.
- h) Distinguish between zero drift and span drift.
- i) What is the need for sample and hold circuit in A/D converter?
- j) Name different types of active filter.

SECTION-B

- Q2. What are the basic functional blocks of a generalized instrumentation system? Identify different blocks with the help of example.
- Q3. Discuss the construction and working of thermocouple, its types, its laws and temperature compensation techniques for thermocouples.
- Q4. Show the construction, working principle of pitot tube. Also mention its advantages and disadvantages.
- Q5. Define Filters. List the different types of active filters and explain one of them.
- Q6. Discuss and design the microprocessor based temperature transducer.

SECTION-C

- Q7. a) Show the construction, working principle of vortex flowmeter. Also mention its advantages and disadvantages.
- b) Discuss the PC based system design for thermal power station.
- Q8. a) Design the butterworth filter for third order.
- b) Explain different types of radiation based level meters with neat sketch.
- Q9. Write short note on following :
- a) S/H Circuit
- b) Criteria of transducer selection

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.