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

Total No. of Pages : 02

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B.Tech.(Electrical & Electronics)(2013 Onwards)/(Electronics & Electrical) (2013 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) Differentiate between sensors and transducer.

b) What do you meant by active transducers?

c) What is the need for sample and hold circuit in A/D converter?

d) What is the effect of post defect acceleration in a CRT?

e) What are the advantages of instrumentation amplifier?

f) Mention the applications of LVDT.

g) What is piezo electric effect?

h) List the advantages of digital voltmeter.

i) Draw the diagram of adder using OP-Amp.

j) What do you meant by telemetry?

SECTION-B

2. What is data acquisition system? Give the block diagram arrangement of a data acquisition system and describe the function of each component.

3. A quartz piezo-electric crystal having a thickness of 2mm and voltage sensitivity of 0.55V-m/N is subjected to a pressure of $1.5MN/m^2$. Calculate the voltage output. If the permittivity of quartz is 40.6×10^{-12}F/m, calculate its charge sensitivity.

4. Explain the successive approximation type of A/D converter.

5. With neat figure explain the construction and working principle of a digital CRO. Compare its advantages over an analog CRO.

6. Describe the construction and working of resistance temperature detector with neat sketch. List its advantages and disadvantages.

SECTION-C

7. What are the selection criteria for the transducer? Explain the construction and working of different types of capacitive transducers and discuss about its their application in different fields.

8. a) Explain the working of photoelectric transducers with neat sketch. List its advantages, disadvantages and applications.

   b) Briefly discuss the use of LED and LCD as display devices in instrumentation. Comment on their relative merits and demerits.

9. Write short note on following :

   a) Analog modulator and demodulator

   b) Digital frequency meter

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.