

October 2018

Time – Three hours  
(Maximum Marks: 75)

*IN.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory.  
Answer any FOUR questions from the remaining in each PART – A  
and PART – B*

*(2) Answer division (a) or division (b) of each question in PART – C.*

*(3) Each question carries 2 marks in PART – A, 3 marks in Part – B  
and 10 marks in PART – C.]*

PART – A

1. Differentiate active and passive transducers.
2. What are the different types of strain gauges?
3. What is Hall Effect? Give the expression of Hall potential.
4. Define CMRR and SVRR.
5. List the four basic ways of converting the capacitance value of capacitive transducer to measurable electric quantity using Op.Amp.
6. What do you mean by bellows?
7. Define proximity sensor.
8. List the features of an instrumentation amplifier.

PART – B

9. List any five advantages of electrical transducer.
10. Write about RVDT.
11. With a schematic diagram, define thermocouple.
12. Write about the block diagram of an Op.Amp.
13. Write note on LPF.
14. List the different types of thermistors.
15. Write about piezo electric microphone.
16. State the advantages of active filters.

PART – C

17. (a) (i) Discuss about the primary sensing elements.  
(ii) Explain the operation of load cell with a neat diagram.  
(Or)  
(b) Discuss about the operation of: (i) Metal resistance thermometer  
(ii) Optical encoder.
18. (a) Explain with diagram, the operation of different types of inductive transducer.  
(Or)  
(b) Explain the construction and working of LVDT.
19. (a) Explain with diagrams about any two types of tachogenerators for measuring angular velocity.  
(Or)  
(b) Explain with a neat diagram the operation of photo voltaic cell and photo conductive cell.
20. (a) Explain with a neat block diagram, the AC and DC signal conditioning system.  
(Or)  
(b) (i) With a neat diagram, explain the operation of an adder circuit using Op.Amp.  
(ii) With a neat diagram, explain the operation of a differentiator circuit using Op.Amp.
21. (a) With a neat diagram, explain the operation of positive and negative clipper circuit using Op.Amp.  
(Or)  
(b) Explain the operation of successive approximation ADC with necessary diagram.
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