

**995****October 2017**

*Time – Three hours*  
*(Maximum Marks: 75)*

*(N.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. Define primary and secondary transducers.
2. Write the applications of LVDT.
3. What types of materials are used in thermocouple?
4. Define an Op. Amp. State its applications.
5. What are the advantages of active filter?
6. What do you mean by load cell?
7. What do you mean by inductive transducer?
8. Define ADC and DAC.

PART – B

9. List the basic requirements of a transducer.
10. Write notes on resistive transducer.
11. Draw the circuit of photovoltaic cell and mention its parts.
12. Give the pin details of IC741.
13. Write notes on LPF.
14. State how the Op. Amp. is used as zero crossing detector.
15. Write about the operation of RVDT.
16. List the characteristics of an ideal Op. Amp.

PART - C

17. (a) Explain the operation of Bourdon tubes and bellows for pressure measurement.

(Or)

(b) Discuss in detail about thermistors. Mention its various types, advantages, disadvantages and applications.

18. (a) Explain how a strain gauge is used for the measurement of displacement.

(Or)

(b) Explain the various methods of liquid level measurement using capacitive transducers.

19. (a) (i) Explain how the thermocouples are arranged for temperature measurement.

(ii) Explain about Hall effect transducer.

(Or)

(b) (i) Explain the operation of piezo electric vibration sensor.

(ii) Explain how the measurement of radiation is done through Geiger muller tube.

20. (a) Explain the inverting and non-inverting mode operation of Op. Amp.

(Or)

(b) Explain the operation of Op. Amp. as comparator with neat diagram.

21. (a) Explain how the Op. Amp. is used as an instrumentation amplifier.

(Or)

(b) Explain the operation of successive approximation ADC with necessary diagrams.

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