

UNIT- I – CLASSIFICATION & SENSING ELEMENTS

PART-A & PART-B QUESTIONS

1. Define transducer. **(APR-18)(OCT-16)**
2. Define thermistor. **(APR-18) (APR-16)**
3. Define primary & secondary transducers. Give an examples. **(APR-18) (OCT-17)**
4. List the basic requirements of a transducer. **(OCT-17) (APR-17) (APR-16)**
5. Define active transducer. Give an example. **(APR-17)**
6. Mention different types of thermistors. **(APR-17) (OCT-16)**
7. Give two examples of primary sensing elements. **(OCT-16)**
8. What is load cell? **(OCT-16)**
9. Mention different types of transducer. **(APR-16)**
10. What type of material is used in RTD? **(APR-16)**
11. Define passive transducer. Give an example.
12. List the advantages of transducers.
13. Which element is used to measure the pressure? (or) Define Bourdon tubes.
14. What is meant by corrugation (or) convolution? (or) Define Bellow.
15. Mention the advantages and disadvantages of thermistors.
16. Write some applications of thermistors.
17. Define digital encoding transducer (or) digital encoder.
18. Mention the advantages and disadvantages of encoder.

PART- C QUESTIONS

1. Explain the operation of Bourdon tubes and bellows for pressure measurement. **(APR-18)**
2. Discuss in detail about thermistors. Mention its various types, advantages, disadvantages and applications. **(APR-18)**
3. Explain the working of shaft encoder & resistive digital encoders. **(APR-17)**
4. Explain the construction and working of strain gauge type load cell. **(APR-17)**
5. Compare active & passive transducers. Draw & list the parts of bourdon tubes. **(OCT-16)**
6. With a neat sketch, explain the operation of digital encoding transducer. **(OCT-16)**
7. Write short notes on:
 - (i) Necessity of transducers (ii) active & passive transducers **(APR-16)**
8. Explain the construction & operation of metal resistance thermometer. Give its advantages & disadvantages. **(APR-16)**
9. Define transducer. Explain in detail about the classification of transducers.

UNIT- II – PASSIVE TRANSDUCERS

PART-A & PART-B QUESTIONS

1. What is strain gauge? (APR-18) (APR-16)
2. What is the use of Geiger-Muller tube? (APR-18) (APR-17)
3. State the uses of LVDT. (APR-18)(OCT-17)
4. State the basic principle of capacitive transducers. (APR-18) (OCT-16)
5. Write about the operation of RVDT. (OCT-17) (OCT-16)
6. What do you mean by inductive transducer? (OCT-17)
7. Mention any two applications of capacitive transducer. (APR-17) (APR-16)
8. Write notes on resistive transducer. (OCT-17) (APR-17) (OCT-16)
9. State the basic principle of inductive transducers. (APR-17)
10. List the parts of inductive proximity sensor. (OCT-16)
11. Expand LVDT and RVDT (APR-16)
12. What are resistive transducers? (or) Write the types of strain gauge.
13. What are the advantages & disadvantages of semiconductor strain gauge?
14. Define capacitive transducer (or) proximity transducer.
15. Write the methods of liquid level measurement using capacitive transducer.
16. What is meant by proximity sensor? Write its merits, demerits & uses.
17. Define LVDT. Write its applications.
18. Draw the characteristics of LVDT.
19. What are inductive transducers?
20. Define Piezo resistive effect (or) strain gauge (or) Piezo resistive strain gauge.

PART- C - QUESTIONS

1. Explain the construction and working of proximity sensor. (APR-18) (APR-17)
2. Explain how displacement can be measured using strain gauge. (APR-18)(OCT-17) (APR-16)
3. Explain the various methods of liquid level measurement using capacitive transducers. (OCT-17)
4. With a neat sketch explain the working of LVDT. (APR-17) (APR-16)
5. Discuss capacitive transducer and its application. (OCT-16)
6. Explain the construction and working of RVDT with a neat sketch. (OCT-16) (APR-15)
7. What is capacitive transducer? Explain how it is used in liquid level measurement. (APR-15)
8. Explain in briefly about strain gauge and its types.
9. Explain in briefly about an inductive transducer with variable working principle.
10. Explain the measurement of pressure using inductive transducer with a neat diagram.

UNIT- III – ACTIVE TRANSDUCERS

PART-A & PART-B QUESTIONS

1. State the principle of solar cell. (APR-18) (APR-17)(OCT-16)
2. What types of materials are used in thermocouple? (OCT-17)
3. Draw the circuit of photovoltaic cell & mention its parts. (OCT-17)
4. State the basic principle of thermocouple. (APR-17)
5. Give any one example for thermocouple. (OCT-16)
6. What is piezoelectric transducer? (OCT-16)
7. Name the instruments used for measurement of radiation. (OCT-16) (APR-15)
8. Define Hall Effect transducer. (APR-16)
9. Give an example for photovoltaic transducer. (APR-16)
10. What is the use of Geiger Muller tube? (APR-16)
11. State the applications of thermocouple. (APR-16)
12. What type of transducer is Hall Effect transducer? (APR-15)
13. What materials are used in piezoelectric transducer? (APR-15)
14. State the application of tacho generator. (APR-15)
15. Define thermocouple & Give the temperature range measurement for thermocouple.
16. Which device is used to measure angular velocity?
17. Define piezoelectric effect, Hall Effect.
18. What is meant by photo voltaic transducer (or) solar cell (or) PV transducer?

PART-C – QUESTIONS

1. Explain the construction and working of thermocouple with neat sketch. (APR-18) (OCT-17)
2. With a neat sketch, explain the working of Hall Effect transducer. (APR-18) (APR-17)
3. (i) Explain how the thermocouples are arranged for temperature measurement. (ii) Explain about Hall Effect transducer. (OCT-17)
4. (i) Explain the operation of piezo electric vibration sensor. (ii) Explain how the measurement of radiation is done through Geiger Muller tube. (OCT-17)
5. Draw a neat diagram of Geiger Muller tube and explain its working. (APR-17) (APR-16)
6. Write short notes on: (i) Hall Effect transducer (ii) Solar cell(OCT-16)
7. Discuss about thermocouple and tachogenerator. (APR-16)
8. Define tachogenerator. Explain the measurement of angular velocity using it. (APR-15)
9. What is piezoelectric transducer? How is it used for vibration measurement? State its features. (APR-15)
10. Explain piezoelectric pressure transducer.
11. Write short notes on following, (i) Piezo electric vibration transducer (ii) Piezo electric microphone (iii) Electrodynamic vibration transducer.
12. Explain photo voltaic transducer. & Explain photo conductive transducer.

UNIT- IV – OPERATIONAL AMPLIFIER

PART-A & PART-B QUESTIONS

1. Define slew rate. (APR-18)
2. Mention any two applications of Operational Amplifier. (APR-18)
3. Define signal conditioning. Write its types. (APR-18)(APR-17)(OCT-16) (APR-16)
4. Mention any three ideal characteristics of Op. Amp. (APR-18)
5. Define an Op. Amp. State its applications. (OCT-17) (APR-16)
6. Give the pin details of IC741. (OCT-17)
7. List the characteristics of an ideal Op. Amp. (OCT-17) (APR-17) (OCT-16)
8. Draw the adder circuit using operational amplifier. (OCT-16)
9. Define comparator. (OCT-16)
10. Give the temperature range measurement for thermocouple.
11. What is differential amplifier? (APR-17) (APR-16)
12. Draw the symbol of operational amplifier. (APR-15)
13. Draw and explain the integrator circuit using operational amplifier. (APR-15)
14. List the application of current to voltage converter. (APR-15)
15. What is meant by voltage-current converter & current-voltage converter?
16. Define the differentiator circuit.
17. Define CMMR & SVRR
18. Mention the types of comparator.
19. Draw the circuit of comparator & its characteristics.

PART-C QUESTIONS

1. Explain with a neat sketch, Op. Amp as an integrator. (APR-18)
2. Draw the block diagram of AC signal conditioning system and explain. (APR-18)
3. Explain the inverting and non-inverting mode of Op. Amp. (OCT-17)
4. Explain the operation of Op. Amp as comparator with neat diagram. (OCT-17)
5. With a neat diagram explain Op. Amp as differentiator. (APR-17)
6. Explain the working of Op. Amp as differential amplifier. (APR-17)
7. Draw the block diagram of AC signal conditioning & explain it. (OCT-16) (APR-15)
8. Write briefly on voltage to current converter and comparator. (OCT-16)
9. Explain DC signal conditioning with a block diagram. (OCT-16)
10. Give brief notes on: (i) Current to voltage converters (ii) Comparator. (OCT-16)
11. Define Op. Amp. Explain the block diagram of an Op. Amp.
12. With neat sketch explain about Op. Amp as an adder and subtractor.
13. Explain scale changer circuit.
14. With neat sketch explain about Op. Amp as an integrator and differentiator.

UNIT- V – SIGNAL CONDITIONERS IN INDUSTRIAL INSTRUMENTATION

PART-A & PART-B QUESTIONS

1. What is clipper & clamper? **(APR-18) (APR-17) (APR-16)**
2. Define ADC and DAC. **(OCT-17)**
3. State how the Op. Amp is used as zero crossing detectors. **(OCT-17)**
4. Define zero crossing detectors. **(APR-17) (APR-16)**
5. Mention any three features of instrumentation amplifier. **(APR-17)**
6. How many operational amplifiers are used in instrumentation amplifier? **(OCT-16)**
7. Which filter is used as a differentiator & integrator? **(OCT-16)**
8. Write the full form of ADC. **(OCT-16)**
9. List the parts of zero crossing detectors. **(OCT-16)**
10. Expand DAC. **(APR-16)**
11. Name the different filters using Op. Amp. **(APR-16) (APR-15)**
12. Give the application of instrumentation amplifier. **(APR-15)**
13. Draw the circuit for zero crossing detectors using operational amplifier. **(APR-15)**
14. What are the components required for D/A converter? **(APR-15)**
15. Define filter circuit & state its types.
16. Write the advantages of active filter.
17. Define LPF & HPF.
18. Which filter is used as an integrator?

PART-C QUESTIONS

1. With a neat diagram explain, the operation of instrumentation amplifier using Op. Amp. **(APR-18)(OCT-17) (APR-17) (APR-16)**
2. With a neat diagram explain, Op. Amp. as a zero crossing detector. **(APR-18) (OCT-16)**
3. Explain the operation of successive approximation ADC with necessary diagrams. **(OCT-17) (APR-17) (APR-15)**
4. Discuss about (i) Bridge amplifier (ii) Active filters. **(OCT-16)**
5. Draw and explain Wein bridge oscillator using operational amplifier. **(APR-16) (APR-15)**
6. Explain the following (i) LPF as Integrator (i) HPF as differentiator.
7. Explain positive & negative clipper.
8. Explain positive & negative clamper.
9. Explain the operation of R-2R ladder network DAC.