

INSTRUMENTATION

(Electrical & Electronics Engineering)

Time: 3 hours

Max. Marks: 70

PART - A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- Define accuracy, precision and resolution.
 - Explain even and odd signals with help of examples.
 - State the advantages of FM over AM.
 - Compare time division multiplexing and frequency division multiplexing.
 - What are the requirements of a signal generator?
 - What do you mean by heterodyne principle?
 - State different elements used as a sensor in RTD.
 - What is the principle of photo voltaic cell?
 - What are the functions of a transducer?
 - List the applications of temperature transducers.

PART - B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

- 2
- Discuss gross and systematic errors in measurement.
 - Explain the PCM transmission and reception with block diagrams.

OR

- 3
- Give the statistical analysis of random errors.
 - What is the purpose of sample and hold circuit? Explain pulse modulation.

UNIT - II

- 4
- Derive an expression for the FM wave.
 - Describe the operation of time division multiplexing.

OR

- 5
- Describe the operation of frequency division multiplexing.
 - With a block diagram, explain modern digital DAS.

UNIT - III

- 6
- With the help of neat block diagram, describe the operation of a wave analyzer.
 - Explain how the Q-meter can be used for the measurement of Q-factor.

OR

- 7
- Explain with a neat sketch, the working principal of a spectrum analyzer.
 - Explain the operation of a digital tachometer.

UNIT - IV

- 8
- Explain the operation of variable reluctance type of inductive transducer.
 - Give the salient features of photo diode.

OR

- 9
- List the advantages of electrical transducers.
 - With a neat figure, explain the working of a piezoelectric transducers.

UNIT - V

- 10
- Write a short note on pressure transducers.
 - Explain semiconductor temperature sensor and IC type sensor

- 11
- Explain how torque is measured.
 - With a neat figure, explain how level of liquid is measured.
