

B.Tech IV Year II Semester (R13) Advanced Supplementary Examinations July 2017

INSTRUMENTATION

(Electrical & Electronics Engineering)

Time: 3 hours

Max. Marks: 70

PART - A

(Compulsory Question)

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

PART - B

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

UNIT - I

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

OR

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

UNIT - II

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

OR

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

UNIT - III

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

OR

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

UNIT - IV

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

OR

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

UNIT - V

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

OR

- 11 (a) Explain how torque is measured.
- (b) With a neat figure, explain how force is measured.
