

R18

Code No: 155BC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, January - 2025

ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

(Electronics and Communication Engineering)

Time: 3 Hours

Max. Marks: 75

Note: i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART - A

(25 Marks)

- 1.a) Define the term Fidelity. [2]
- b) Define the term Dynamic error and Lag. [3]
- c) Mention any two applications of Spectrum analyzer. [2]
- d) What is a power analyzer? [3]
- e) What is a Lissajous pattern? [2]
- f) Mention any two differences between active probe and passive probe. [3]
- g) Mention the differences between active and passive transducers. [2]
- h) List out the applications of Variable Capacitance Transducers. [3]
- i) Mention any two precautions to be taken in using bridges. [2]
- j) State the operating principle of Displacement Meter. [3]

PART - B

(50 Marks)

- 2.a) Discuss the performance characteristics of an instrument.
- b) Discuss in detail about the multi range DC voltmeters using individual multipliers. [5+5]

OR

- 3.a) Explain the operation shunt type ohmmeter and also present the calibration of it.
- b) Explain the operation of DC Differential voltmeter. [5+5]

- 4.a) Explain the working of video signal generator with neat diagram.
- b) With the help of a block diagram, explain an AF wave analyzer. [5+5]

OR

- 5.a) Explain operation of AF sine and square wave generator.
- b) Draw the circuit diagram and explain the working of a heterodyne type wave analyzer. [5+5]

- 6.a) Draw the neat sketch of the CRT and explain the main components of it.
- b) With a neat block diagram, explain the operation of a sampling oscilloscope. [5+5]

OR

- 7.a) Explain the operation of vertical amplifier used in CRO.
- b) Explain the operation of dual beam CRO with a block diagram. [5+5]

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- 8.a) Describe the method used to measure the pressure using Piezoelectric transducer.
b) Explain the working of Resistance thermometers. [5+5]

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- 9.a) Explain the principle of working and operation of gyroscopes.
b) Write short notes on measurement of force. [5+5]

- 10.a) Derive the expression for unknown resistance in Kelvin bridge.
b) Explain the working principle and procedure for finding liquid level. [5+5]

OR

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- 11.a) Explain the technique of measuring resistance using Wheatstone bridge.
b) Explain the working principle and procedure to measure high pressure. [5+5]

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