

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
IV B. Tech I Semester Advanced Supplementary Examinations March 2025
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

(Open Elective)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks

UNIT-I

1. a) Explain the following terms in detail [7M]
(i) Speed of response (ii) Fidelity (iii) Lag and Dynamic error
b) Discuss the process of finding the multiplier resistor using the basic DC voltmeter with a neat circuit diagram. [7M]
(OR)
2. a) Give the classification of errors and explain them. [7M]
b) Explain in detail the shunt type Ohmmeter with a neat diagram. [7M]

UNIT-II

3. a) Illustrate the working of a function generator with a neat block diagram. [7M]
b) Draw the basic diagram of RF spectrum analyzer and discuss its working. [7M]
(OR)
4. a) Discuss square wave and pulse generator with neat block diagrams. [7M]
b) What are the various applications of Digital Fourier Analyzers? [7M]

UNIT-III

5. a) Illustrate the working of a dual beam CRO with a neat diagram. [7M]
b) Explain digital storage oscilloscope with schematic block diagram and state its Applications. [7M]
(OR)
6. a) Draw the block diagram of sampling oscilloscope and explain its operation. [7M]
b) Explain various types of probes used for CRO. [7M]

UNIT-IV

7. a) Draw the circuit of a Wein's bridge and discuss frequency measurement by it. [7M]
b) Discuss various methods of connecting components to a Q-meter for measurement. [7M]
(OR)
8. a) Draw the Schearing's bridge and discuss the measurement of unknown capacitance. [7M]
b) A Wein bridge circuit consists of the following: [7M]
 $R_1 = 4.7 \text{ k}\Omega$, $C_1 = 5 \text{ nf}$, $R_2 = 20 \text{ k}\Omega$, $C_3 = 10 \text{ nf}$, $R_3 = 10 \text{ k}\Omega$, $R_4 = 100 \text{ k}\Omega$
Determine the frequency of the circuit.

UNIT-V

9. a) Describe the construction and working of LVDT. [7M]
b) What are pressure transducers? Explain about capacitive pressure transducer. [7M]
(OR)
10. a) Explain the measurement of Velocity with neat sketch. [7M]
b) Describe the operation of Piezo-electric transducer with neat sketches. [7M]
