2003000205020094
EXAMINATION OCTOBER 2024
BACHELOR OF SCIENCE (FIFTH SEMESTER)
ELECTRONICS – IX LEVEL-2
BASIC INSTRUMENT & MEASUREMENT

[Time: As Per Schedule] **[Max. Marks : 50]**

Instructions:
1. Fill up strictly the following details on your answer book
   a. Name of the Examination : **BACHELOR OF SCIENCE (FIFTH SEMESTER)**
   b. Name of the Subject : **ELECTRONICS - IX LEVEL-2 BASIC INSTRUMENT & MEASUREMENT**
   c. Subject Code No : **2003000205020094**
2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.
5. Assume data, if required.

Seat No:

Student's Signature

Q.1 Answer in brief: **14**

A) Define accuracy and precision.
B) Draw the schematic of a general ac bridge.
C) Define deflection sensitivity and hysteresis.
D) Define the term quality factor.
E) Define transducers and name a few.
F) What is the resolution of 4 1/2 digit display on 1V & 10V ranges?
G) What devices can be used to detect the balance condition of a bridge?

Q.2 A) What is an AC bridge? Describe the Maxwell Bridge with necessary equations. **6+6**

B) Discuss the advantages and disadvantages of Maxwell Bridge.

OR

A) How can you modify a PMMC to use it as a dc ammeter & a dc voltmeter? Explain with necessary equations. **6+6**

B) A basic D'Arsonal movement with a full-scale deflection of 50 μA & internal resistance of 500 Ω is used as a voltmeter. Determine the value of the multiplier resistance needed to measure a voltage range of 0-10V.

Q.3 A) Explain different types of Errors and how they can be reduced? **6+6**

B) Explain the construction & working of a galvanometer.

OR

A) Derive the balance equation of an AC bridge. **6+6**

B) A capacitance comparison bridge is used to measure the capacitive impedance at the frequency of 3 KHz. The bridge constants at bridge balance are: C3 = 10μF, R1 = 1.2 KΩ, R2 = 100 KΩ, R3 = 120 KΩ. Find the equivalent series circuit of the unknown impedance.

Q.4 Write short notes on: (ANY TWO) **12**

A) Strain Gauge

B) Capacitive Transducer

C) Thermistor characteristics and applications

D) Desauty Bridge

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