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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech (EE) (Sem.-3)

ELECTRICAL MEASUREMENT AND MEASURING INSTRUMENTS

Subject Code : EE-205

Paper ID : [A0404]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A**1. Answer briefly :**

- a) Discuss the M.K.S system of units.
- b) What do you mean by T/W ratio? Explain.
- c) Explain the advantages of shunts when used for extension of range.
- d) Explain the principle of induction type instruments.
- e) Discuss advantages and disadvantages of the Hay's bridge.
- f) Write down the balance conditions of A.C. bridges.
- g) What is self-balancing potentiometer? Explain.
- h) Draw and explain the BH curve.
- i) What are systematic errors? Explain.
- j) List the advantages of an instrument transformer.

SECTION-B

2. Describe the construction of a resistance standard. Describe the techniques used to minimize errors in them.
3. Describe the construction and working of PMMC instrument. Derive the equation for deflection if the instrument is spring controlled.
4. Derive the equations for balance in the case of Maxwell's inductance capacitance bridge. Draw the phasor diagram for balance conditions.
5. What are Permeameters? Explain the working of a Hopkinson Permeameter.
6. Define the following terms as used for instrument transformer :
 - a) Transformation ratio
 - b) Nominal ratio
 - c) Turns ratio
 - d) Ratio correction factor
 - e) Burden.

SECTION-C

7. Discuss in detail the measurement of iron losses by Wattmeter and bridge methods.
8. Explain :
 - a) Operating, damping and controlling torques.
 - b) Theory and construction of current transformer.
9. Discuss the following :
 - a) Wheatstone bridge.
 - b) Basic potentiometer circuit and its applications.