



Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Electronics & Electrical Engg.)
(Sem.-3)

ELECTRICAL MEASUREMENTS AND INSTRUMENTATION

Subject Code : BTEE-303 M.Code : 57094

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. What do you mean by a standard? Explain its significance.
 - b. Explain significance of ratio of operating torque to weight of moving parts in an analog indicating instrument.
 - c. Why compensation is required? Explain.
 - d. What are the balance conditions of A.C. bridges? Explain.
 - e. Explain why a potentiometer does not load the voltage source whose voltage is being determined?
 - f. Why is it preferable in bridge circuits that the equation of balance is independent of frequency? Explain.
 - g. What do you mean by insulation testing? Explain.
 - h. What are parameters? Explain their significance.
 - i. What do you mean by BH curve? Explain.
 - j. Compare instrument transformer with ordinary transformer.

SECTION-B

2. Discuss the M.K.S system of units. Describe how R.M.K.S system of units different from M.K.S system of units? Also write down seven base units of SI system.
3. Explain the sources of errors in single phase induction type energy meters.
4. Discuss the various applications of A.C. potentiometers.
5. Derive the equations for balance in the case of Maxwell's inductance capacitance bridge. Draw the phasor diagram for balance conditions?
6. Explain the disadvantages of shunts and multipliers when used for extension of range. Explain how instrument transformers are a better substitute for shunts and multipliers especially for high range values.

SECTION-C

7. What are different problems associated with measurement of low resistances? Explain the principle of working a Kelvin Double Bridge and explain how it overcomes the different problems associated with measurement of low resistances?
8.
 - a. Explain the construction and working of PMMC instrument. Derive the equation for deflection if the instrument is spring controlled.
 - b. Describe the standards of EMF.
9. Explain the following :
 - a. Flux meter
 - b. Various operating forces needed for operation of analog indicating instruments

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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