Code No. 6037

FACULTY OF ENGINEERING

B.E. 2/4 (EE/Inst.) I-Semester (Main) Examination, November 2013

Subject : Electrical Measurements and Instruments

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions of Part - A and answer any five questions from Part-B.

PART – A (25 Marks)

1. What is the difference between accuracy and precision? (2)
2. List the basic characteristics of measuring instruments. (2)
3. What are the advantages of PMMC instruments over PMMI instruments? (2)
4. Define Braking Torque. (2)
5. What are the possible errors in induction type Energy meter? (3)
6. What do you understand by standard cell and standard resistance? (3)
7. What are the advantages of instrument transformers as compared with ammeter shunts and voltmeter multipliers? (3)
8. Write the advantages of potentiometers. (2)
9. Explain the calibration of Ammeter. (3)
10. Derive the general condition for balance of DC Bridge. (3)

PART – B (5x10=50 Marks)

11. Explain the constructional details and working principle of moving Iron instruments. Also explain how to extend the range of Ammeter. (10)

12. A bridge has following details :
    Arm ab: R_1 = 1000 Ω in parallel with C_1 = 0.5 μF
    Arm bc: R_3 = 1000 Ω in series with C_3 = 0.5 μF
    Arm cd: L_4 = 30mH in series with R_4 = 200Ω

    The supply frequency is 100 Hz. Find the constants of arm 'da' to balance of bridge. (10)

13. Explain the principle of Ballastic Galvanometer and also derive an expression for deflection of this meter. (10)

14. Explain the working principle and constructional details of dynamometer type watt meter? Also derive the Torque equation. (10)

15. Explain how to determine the leakage factor of a DC machine by using flux meter. (10)

16. (a) Explain determination of Hysterisis loop by method of reversals. (5)
    (b) A energy meter whose constant is 600 rev/KWh makes 5 revolutions in 20 seconds. Calculate the load in KW. (5)

17. With the help of vector diagram, obtain the expressions for the ratio and phase angle error of a current Transformer. (10)

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