CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐ **15EE36**

Third Semester B.E. Degree Examination, June/July 2018
Electrical and Electronic Measurements

Time: 3 hrs.   Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1   a. Discuss limitations of Wheatstone Bridge and explain how low resistance is measured by KDB. **(08 Marks)**

    b. For an ac bridge evaluate unknown impedance in the arm DC when bridge is balanced at 2khz with following components in each arm.
    Arm AB: 10kΩ
    Arm BC: 100µF series with 100kΩ
    Arm AD: 50kΩ
    Detector is connected between B and D. **(08 Marks)**

OR

2   a. Obtain the dimensional equations in SI units for
    i) Absolute permeability   ii) Absolute permittivity. **(06 Marks)**

    b. Discuss how capacitance of the capacitor is measured by Schering bridge. **(10 Marks)**

Module-2

3   a. Reproduce the errors in 1-φ kWh meter and explain how energy meter calibrated. **(08 Marks)**

    b. A 1-φ energy meter operating at normal 1-φ voltage has a constant load of 4A passing through it for 6 hrs at 0.8 power factor. If the meter disc makes 2209 revolutions during this period, what is the meter constant in revolutions/kWh? Calculate the power factor of the load if the number of revolutions made by meter are 1472 when operated at normal 1-φ AC supply at 5A for 4 hrs. **(08 Marks)**

OR

4   a. Explain the construction and operating principle of Weston frequency meter and 1-φ pf meter. **(08 Marks)**

    b. Discuss phase sequence indicator. **(03 Marks)**

    c. A Wattmeter has current coil and pressure coil resistance of 0.2Ω and 5000Ω respectively. Evaluate the percentage of error in the Wattmeter reading when load takes 20A, at 250V with 0.8 pf lag for two methods of connection of Wattmeter. **(05 Marks)**

Module-3

5   a. Discuss Silsbee's method of testing CT. **(08 Marks)**

    b. What do you mean by shunts and multipliers and derive the expression for shunt and multipliers. **(08 Marks)**

OR

6   a. Discuss how the iron losses are measured by using Wattmeter. **(07 Marks)**

    b. List advantages of instrument transformers. **(02 Marks)**

    c. Discuss how leakage flux is measured. **(07 Marks)**

1 of 2

Module-4

7 a. List advantages of electronic meters over the conventional meters. (03 Marks)

   b. Discuss construction and operation of TRUE RMS reading voltmeter. (05 Marks)

   c. List characteristics of DVM and explain successive approximation type DVM. (08 Marks)

OR

8 a. Explain the principle of operation Q meter and discuss different application of Q-meter. (08 Marks)

   b. List different types of DVM. Explain with sketch the Ramp type DVM. (08 Marks)

Module-5

9 a. Explain why recorders are essential? With sketch explain x-y recorder. (08 Marks)

   b. Discuss with necessary figure i) ECG   ii) EEG. (08 Marks)

OR

10 a. Write a short notes on i) LED   ii) Nixie tube   iii) LCD. (08 Marks)

   b. With neat sketch explain LVDT recorder. (05 Marks)

   c. Write a short note on dot matrix display. (03 Marks)

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