SE(E) Sem III (old)   25/5/09
ws April 09 208 Electrical Measurements & Measuring
Con. 2510-09.   (OLD COURSE) Instruments. VR-3052

(3 Hours)   [Total Marks : 100]

MASTER
Page (1)

N.B. : (1) Question No. **1** is **compulsory**.
    (2) Attempt any **four** questions out of remaining **six** questions.
    (3) **Figures** to the **right** indicate **full** marks.

1. (a) Derive relationship between electrostatic and electromagnetic system of units.   10
    Aslo obtain dimensions of capacitance, resistance and inductance in electrostatic system.

  (b) Define "Guarantee Error". Explain types of errors with appropriate examples.   10

2. (a) Explain "Diamagnetism, Paramagnetism and Ferromagnetism".   10
  (b) What is B-H curve. Explain any one method of plotting B-H curve. What   10
    information is derived from the curve ?

3. (a) Explain basic operation, measurement errors, limitations and applications   10
    of Wheatstone Bridge.

  (b) Explain fundamentals of measurements of elements using A.C. bridges with   10
    the help of Generalised AC bridge.

4. (a) Explain use of copper shading bands in case of Induction type Energy Meters.   10
    What is "Creep" ?

  (b) Explain with neat diagram construction and working of "single phase   10
    Electrodynamometer type wattmeter."

5. (a) Describe with neat diagram construction and working of PMMC instruments.   10
    Derive torque equation.

  (b) A 5 Amp, 230 Volts meter on full load unity power factor test makes 60 revolutions   10
    in 360 seconds. If the normal disc speed is 520 revolutions per kwh. What
    is the percentage error ? Also comment on speed of disc.

6. (a) Explain different applications of D.C. potentiometers.   10
  (b) A milliammeter of 2·5 Ω resistance reads up to 100 milliampears. What resistance   10
    is necessary to enable it to be used as :
      (i) A voltmeter reading up to 10 Volts.
      (ii) An Ammeter reading up to 10 Amp.
    Draw the connection diagram in each case.

7. Write short notes on any **four** :—   20
    (a) Synchroscope
    (b) Megger
    (c) Power factor meter
    (d) Errors in CT and PT
    (e) Measurement of Low, Medium and High Resistance.