

## **B.Tech. Degree III Semester Examination November 2013**

### **EE 1305 ELECTRICAL MEASUREMENTS AND MEASURING INSTRUMENTS** (2012 Scheme)

Time : 3 Hours

Maximum Marks : 100

#### **PART A** (Answer *ALL* questions)

(8 × 5 = 40)

- I. (a) Differentiate between accuracy and precision with examples.  
 (b) Prove that a PMMC instrument can be used only for measuring DC.  
 (c) What are instrument transformers? List out their advantages.  
 (d) What is creeping? Explain the remedy to eliminate creeping?  
 (e) Derive the condition for balance of a wheat stones bridge. What are its limitations?  
 (f) Explain the application of Hibbert magnetic standard.  
 (g) Explain voltage, frequency and phase measurement using CRO.  
 (h) Explain the laws of illumination?

#### **PART B**

(4 × 15 = 60)

- II. (a) Explain the different types of error in measurement and their remedies? (10)  
 (b) A moving coil instrument gives a full scale deflection of 10mA when the potential difference across its terminals is 100mV. Calculate: (5)  
 (i) shunt resistance for a full scale deflection to 100A  
 (ii) the series resistance for full scale reading with 1000V.

#### **OR**

- III. (a) Explain the principle of operation of dynamometer type instrument. Derive its torque equation. (10)  
 (b) Explain briefly different standards of measurement. (5)
- IV. (a) Explain a suitable method to measure insulation resistance. (8)  
 (b) Explain the working of single phase power factor meter with diagram. (7)

#### **OR**

- V. (a) Explain the working of single phase induction type energy meter with a neat figure. (10)  
 (b) A 230V single phase energy meter has a constant load current of 4A passing through it for 5 hours at unity power factor. If the meter makes 1104 revolutions during this period, what is the meter constant in revolutions per kwhr? (5)
- VI. (a) Explain Murray loop test for localization of cable faults. (8)  
 (b) Explain the measurement of capacitance using Scherings bridge? (7)

#### **OR**

- VII. (a) Explain the determination of hysteresis loop by method of reversals with a neat diagram. (10)  
 (b) Explain the working of flux meter with neat diagram. (5)
- VIII. (a) Explain the principle of operation of cathode ray oscilloscope with neat diagram. (10)  
 (b) Explain dual beam oscilloscope with the help of block diagram. (5)

#### **OR**

- IX. (a) Explain how hummer-brodhum photometer head is used to measure mean spherical candle power of a source of light. (10)  
 (b) Explain the terms: (5)  
 (i) Polar curves  
 (ii) Huminuous intensity