3E1485

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B. Tech. (Sem. III) (Main & Back) Examination, January - 2013
Electrical Engg.
3EE5 Electrical Measurements

Time : 3 Hours] [Total Marks : 80
[Min. Passing Marks : 24

*Attempt any **five questions**, selecting **one question** from **each unit**. **All** questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

Use of following supporting material is permitted during examination.

(Mentioned in form No. 205)

1. Nil 2. Nil

UNIT - I

1 (a) Explain the classification of moving Iron Instruments. 8

(b) Derive the general torque equation for a moving iron Instruments and how they are different, from moving coil instruments. 8

OR

1 (a) Explain calibration of single-phase energy meter by phantom method. 8

(b) Explain errors in wattmeter and energy meter and how they are corrected ? 8

UNIT - II

2 (a) State and derive the Blondel's theorem. 8

(b) Explain applications of current transformer for measuring current and energy. 8

OR

2 (a) Describe the two wattmeter method of measurement of power in 3-phase circuit. 8

(b) Explain ratio and phase angle error in polyphase metering. 8

UNIT - III

3 (a) Explain in detail the construction and working principle of A.C. potentiometer. 10

(b) Explain crompton potentiometer in detail. 6

OR

3 (a) Explain construction and operation of slide wire D.C. Potentiometer. 8

(b) Explain the wattmeter calibration using a D.C. Potentiometer. 8

UNIT - IV

4 (a) Explain the principle of working of a Kelvin's double bridge for low resistance measurement. 8

(b) Explain Price-Guard's wire method for measurements at high resistance.

8

OR

4 (a) Explain method of measuring earth resistance.

8

(b) Explain classification of resistance, how Wheatstone bridge method is employed to measure resistance ?

8

UNIT - V

5 (a) Explain the working and construction of De Sauty bridge for capacitance measurement.

8.

(b) Explain the Schering's bridge. Where it is used ? Derive its equation of balance.

8

OR

5 (a) Explain Heaviside bridge for measurement of mutual inductance.

8

(b) Explain in detail the working principle of Anderson's bridge.

8