[06 – 2111]

II/IV B.E. DEGREE EXAMINATION.

First Semester

Electrical and Electronics Engineering

Electrical Measurements

(Common with MS Electrical and Electronics Engineering)

(w.e.f. admitted batch of 2006-2007)

Time : Three hours Maximum : 70 marks

Answer question No.1 and any other FOUR questions.

All questions carry equal marks.

1. (a) Define the terms accuracy and precision.

(b) What is standard cell and standard resistance?

(c) What type of damping used in MI type instruments?

(d) List the factors which will effect the resistance of an earth electrode.

(e) Write the advantages of Anderson's Bridge.

(f) What is leakage factor? List the method to determine it?

(g) List out the advantages of coordinates type potentio meter.

2. (a) Define the terms (i) Repeatability (ii) Accuracy (iii) Precision (iv) Static sensitivity (v) Resolution (vi) Linearity.

(b) Explain the principle and working of a permanent magnet moving coil type instruments and derive the expression for net torque and angle.

3. (a) Explain the construction of dynamometer instruments.

(b) Write about frequency meter and discuss its working principle.

4. (a) Draw the circuit of a Kelvin's Double Bridge used for measurement of low resistance. Derive the condition for balance.

(b) Explain the loss of charge method for measurement of insulation resistance of cable.

5. (a) Draw and explain campbell's bridge with neat sketch.

(b) Describe working of a low voltage schering bridge. Derive the equation for capacitance and dissipation factor. Draw the phasor diagram of the bridge under conditions of balance.

6. (a) Describe a method of experimental determination of flux density in a specimen of magnetic material using ballastic galvanometer.

(b) Describe the method for determination of B-H curve of a magnetic material using methods of reversal.

7. (a) Write about Fisher square for measurement of iron loss, briefly.

(b) Draw the circuit diagram of a crompton's potentiometer and explain its working.

8. (a) Describe how high currents and voltage are measured with the help of instrument transformers? Describe the advantages.

(b) Explain the effect of secondary burden on the ratio and phase error of current transformers.