Code: 15A02501 **R15**

B.Tech III Year I Semester (R15) Regular Examinations November/December 2017

ELECTRICAL MEASUREMENTS

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) State the advantages of PMMC.
(b) What is a lissajous pattern?
(c) Write different methods of measurement of medium resistance.
(d) Define dissipation factor.
(e) What are the advantages of two wattmeter method?
(f) What is meant by meter constant of an energy system?
(g) What is the usual current rating of CT secondary?
(h) Distinguish between D.C & A.C potentiometers.
(i) Why are ballistic tests conducted?
(j) Name any two methods available for the determination of B-H curve of a specimen.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 (a) Derive the torque equation for moving iron instruments.
(b) A 2 mA meter with an internal resistance of 100 Ω is to be converted to 0-150 mA ammeter. Calculate the value of the shunt resistance required.

OR

3 Draw the block diagram of CRO & explain briefly the major parts of it.

UNIT – II

4 Draw circuit diagram of Wheatstone bridge and derive its balance condition.

OR

5 (a) The impedance of the basic a.c bridge are $Z_1 = 50\ \Omega \angle 180^o$, $Z_2 = 250\ \Omega \angle 0^o$, $Z_3 = 200\ \Omega \angle 30^o$. Calculate the constants of unknown impedance.
(b) Draw the circuit diagram of Schering bridge and also derive equations under balances.

UNIT – III

6 Explain the construction and theory of operation of single phase electro dynamo meter type Wattmeter.

OR

7 Derive torque equation of single phase induction type energy meter.

UNIT – IV

8 (a) A 250:5, current transformer is used along with an ammeter. If ammeter reading is 2.7A. Estimate the line current.
(b) List out differences between C.T & P.T.

OR

9 (a) What are the applications of A.C potentiometers?
(b) Draw the circuit diagram of D.C Crompton's potentiometer and explain its working.

UNIT – V

10 Explain construction and working principle of flux meter with neat sketch.

OR

11 How B-H curve is determined using method of reversals?

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