4/10/13

B.E/ B.Tech DEGREE END SEMESTER EXAMINATIONS, Nov/Dec 2013
B.E- Industrial Engineering (FULL TIME)
EE - 8202/ Fundamentals of Electrical Engineering
II - SEMESTER (REG: 2012)

Time : 3 Hours **Max.Mark : 100**

Answer ALL Questions

Part-A(10*2 =20 Marks)

1. Write the Kirchhoff's voltage equations for the circuit shown in Figure 1.

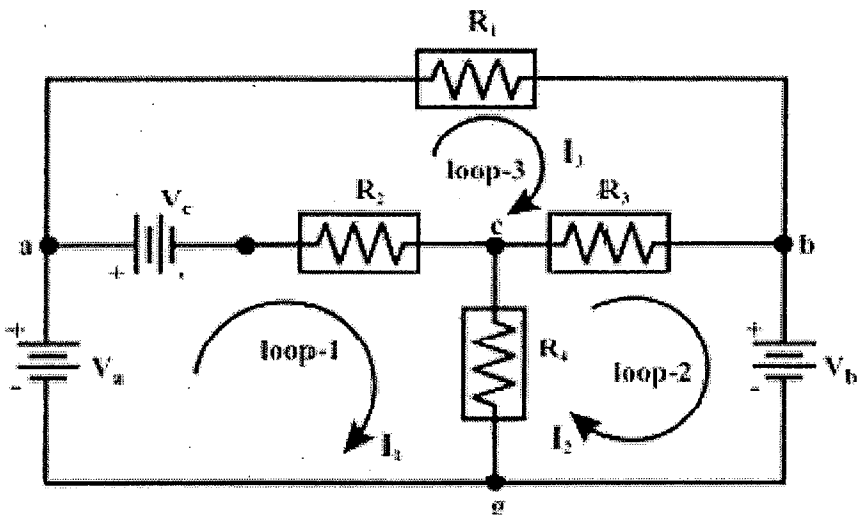

Figure 1 Circuit diagram for Question.1

2. Define RMS value and power factor.
3. Compare series and shunt windings in DC machines.
4. What is the need for starters in DC motors?.
5. What will happen when DC supply is given to transformer?
6. Write the line and phase relationships of voltage and current in star as well as in delta connection.
7. Define efficiency and slip.
8. How induction motor's starting torque can be increased?
9. What is meant by creeping?
10. Why a scale of a MI instrument is non-uniform?

Part B-(5*16=80 Mark)

11. A **230V, 50Hz** a.c. supply is applied to a coil of 1 **mH** inductance and **25 Ω** resistance connected in series with a **10 μF** capacitor. Calculate **impedance, current, power factor angle, power factor and power consumed**. [4+4+2+2+4]

12.a (i) Derive the torque equation of D.C. motor . (4)

(ii) Explain various speed control methods of DC motor. (12)

Or

12.b. Explain three point starter with neat diagram. (16)

13.a. An ideal 25 KVA transformer has 500 turns on the primary winding and 40 turns on the secondary winding. The primary is connected to 3000 V, 50 Hz supply. Calculate

(i) Primary and secondary currents on full load

(ii) Secondary EMF and

(iii) the maximum core flux

Or

13.b Prove that two watt-meters are sufficient to measure three phase power. (16)

14.a. Explain the working principle of three phase induction motor and derive the torque equation under running conditions. (16)

Or

14.b. Explain the working principle of three phase alternator. Explain the starting methods of single phase induction motor.

15.a Explain moving coil meter with necessary diagram and equations. Mention its advantages and applications.

OR

15.b Explain moving coil meter with necessary diagram and equations. Mention its advantages and applications