24/10/13

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B.E/ B.Tech DEGREE END SEMESTER EXAMINATIONS, Nov/Dec 2013
B.E- Industrial Engineering (FULL TIME)
EE - 9169/ Fundamentals of Electrical Engineering
II - SEMESTER (REG: 2008)

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

Answer ALL Questions

Part-A(10*2 =20 Marks)

1. Explain the disadvantages of Ohm's law.
2. Why sinusoidal wave form is preferred as an AC source?
3. State the need for commutator in DC generator.
4. What is condition for getting maximum efficiency in DC machines?
5. Compare auto transformer and two winding transformer.
6. Write the phase relationship between line voltage and phase voltage in star connection.
7. What will happen when the rotor of three phase induction motor runs above synchronous speed.
8. Why rotating field is preferred in alternators?
9. How creeping can be avoided in energy meter?
10. Why a scale of a MC instrument is uniform?

Part B-(5*16=80 Mark)

11. Find the currents in all branches shown in Figure .1.

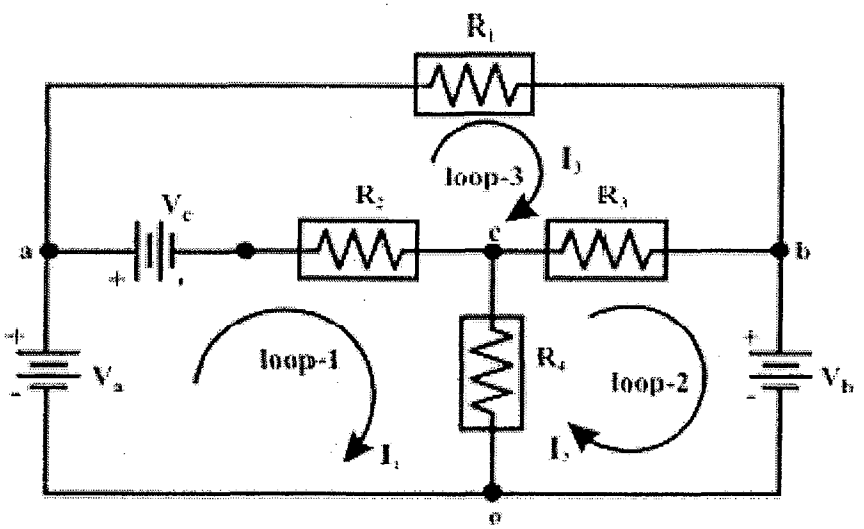

Figure 1 Circuit diagram for Question.11

12.a (i) Derive the EMF equation of DC generator. (4)

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

Or

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

13.a. Derive the EMF equation of transformer and explain the various losses occurred in transformer.

Or

13.b Prove that one wattmeter is sufficient to measure three phase reactive 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 iron meter with necessary diagram and equations. Mention its advantages and applications.

Or

15.b Explain dynamometer type wattmeter with necessary diagram and equations. Mention its advantages and applications