



B.E. (Full-Time) DEGREE EXAMINATIONS APRIL / MAY 2013

Industrial Engineering
Second Semester (R-2008)

EE 9169 – Fundamentals of Electrical Engineering

Time : 3 Hours

Max. Marks: 100

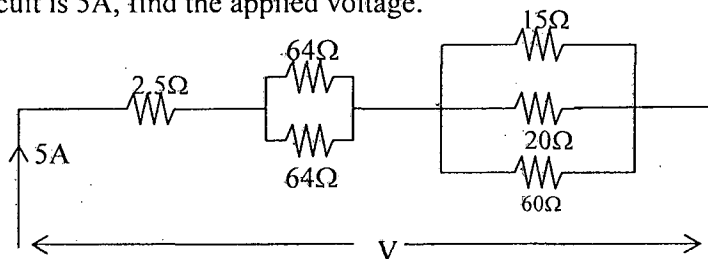


PART – A (10 x 2 = 20 Marks)

1. The resistance of a 220V, incandescent lamp is 250Ω . Calculate the current taken by the lamp.
2. Define direct current and alternating current.
3. What are the various losses that occurs in a d.c generator?
4. Define back emf.
5. What do you understand by step-down and step-up transformer?
6. What are the disadvantages of low power factor?
7. What is slip of an induction motor?
8. Explain the principle of operation of alternator.
9. What are the various forces required in measuring instrument for its proper functioning?
10. How are the measuring instruments classified?

PART – B (5 x 16 = 80 Marks)

11. Find the equivalent resistance of the circuit shown in the fig. If the current passing through the circuit is 5A, find the applied voltage.



12. a. i. Derive the emf equation of a d.c. generator. (6)
ii. Draw the connection diagram of various types of generators. (10)
(OR)
b. A 250V shunt motor takes a total current of 25A. If the resistance of the armature is 0.2Ω and the shunt field is 200Ω , find shunt field current, armature current and back emf.
13. a. i. Explain the working principle of a transformer. (6)
ii. Describe the construction details of 3-phase transformer. (10)
(OR)
b. A 3-phase system supplies a load of 30kW at a pf. Of 0.8. The line voltage is 250V. If the load is connected in (i) star (ii) delta find, the line current and phase current.
14. a. i. Explain the rotating magnetic field, produced in 3-phase induction motor. (6)
ii. Describe the construction details of squirrel cage rotor and wound rotor. (10)
(OR)
b. Describe the construction details of 3-phase alternator.
15. a. Describe with the help of diagrams, the working of a moving coil permanent magnet ammeter. (OR)
b. Describe the construction of single phase energy meter.