

Code No: A10402

MLR15

MLR INSTITUTE OF TECHNOLOGY

(Autonomous Institute)

I B.Tech I Sem Supplementary/Improvement Examinations, February-2016

ELECTRICAL AND ELECTRONICS ENGINEERING

(MECH)

- Note: 1. This question paper contains two parts A and B.
2. Part A is compulsory which carries 25 marks. Answer all Questions in part A.
3. Part B consists of 5 units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART – A

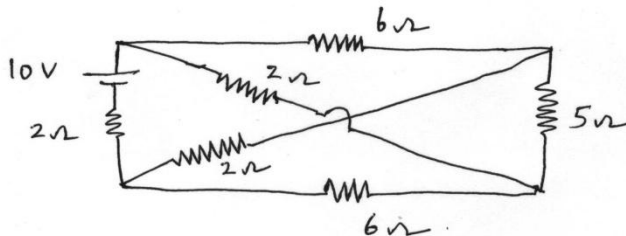
(25 Marks)

- 1 a) Explain the losses that occur in a d.c machine ? [2M]
 - b) Write the formula for Delta to star transformation. [2M]
 - c) List out the parts of a dc generator [2M]
 - d) What is the difference between the half wave and full wave rectifier [2M]
 - e) Write the characteristics of bipolar junction transistor? [2M]
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- 2 a) Derive the torque equation of a dc motor? [3M]
 - b) Define slip and write the torque-slip characteristics of induction motor? [3M]
 - c) Explain the half wave rectifier? [3M]
 - d) Write about transistor amplifier. [3M]
 - e) Define and Explain ohms Law with its limitations? [3M]

PART – B

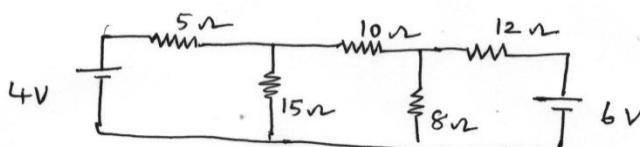
(50 Marks)

- 3 a) Derive the star to delta and delta to star transformation in a network? [6M]
- b) In the circuit shown below, find the current supplied by the source. [4M]



(or)

4. Define and explain the kirchoffs Laws ? [10M]
Solve the network shown below for the current in the 8 ohm resistor by kirchoff's laws.



- 5 a) Derive the EMF equation of a D.C Generator and explain each part? [6M]
b) A 4-Pole dc shunt generator with lap connected armature supplies a load of 100A at 200V. The armature resistance is 0.1Ω and the shunt field resistance is 80Ω . Find (i) total armature current (ii) current per armature path, and (iii) EMF generated. [4M]

(or)

- 6 a) Name the types of D.C motors and Explain the principle of operation of dc motor. [6M]
b) A 4-Pole, 440V dc shunt motor takes a full load current of 40A. The armature is wave wound with 762 conductors. The flux per pole is 0.025 wb. Effective armature resistance is 0.25Ω . Assuming a brush contact drop of 2V, calculate the full load speed. [4M]
- 7 a) Explain the principle of operation of 3-phase induction motor with a neat diagram. [5M]
b) Define slip and derive the torque equation of 3-phase induction motor? [5M]

(or)

- 8 a) Explain the principle of operation of 3-phase alternator? [5M]
b) Explain in detail the working principle of permanent magnet moving iron instruments? [5M]

- 9 a) Explain the working and V-I Characteristics of Zener diode? [5M]
b) With suitable diagram explain centre tapped full wave rectifier. [5M]

(or)

- 10 a) With the circuit diagram explain V-I Characteristics of PN junction diode. [6M]
b) A half wave rectifier is used to supply 30V d.c to a resistive load of 500 ohms. The diode has a forward resistance of 30 ohms. Find the maximum value of AC Voltage required at input? [4M]

- 11 Explain about CE configuration of the transistors and its characteristics? [10M]

(or)

- 12 Explain about CC configuration of the transistors and its characteristics? [10M]