

Code No: A10402

MLR INSTITUTE OF TECHNOLOGY

(An Autonomous Institution)

I B.Tech I Sem Supplementary Examinations- December-2016

ELECTRICAL AND ELECTRONICS ENGINEERING

(MECH)

Time: 3 hours

Max.Marks :75

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

[25M]

1. a) Define ohm's Law? [2M]
- b) List the parts of a dc m/c [2M]
- c) Why the transformer core is Laminated? [2M]
- d) What are the different types of electrical measuring instruments? [2M]
- e) What is an amplifier? [2M]

2. a) Write active and passive elements [3M]
- b) Write the basic principle of indicating instruments? [3M]
- c) Explain the PN Junction diode [3M]
- d) Draw the characteristics of transistor in CE Configuration? [3M]
- e) Write the constructional features of transformer? [3M]

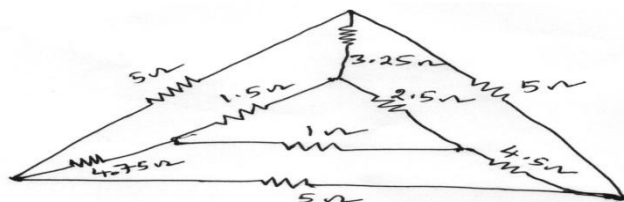
PART – B

[50M]

3. a) Write the types of voltage sources and types of elements in a electrical circuit? Explain the relationship of R,L and C with voltage and current? [5M]
- b) A coil of 5Ω resistance is connected in parallel with a coil of R_1 ohms resistance. This combination is then connected in series with an unknown resistor of R_2 ohms and the complete circuit is then connected to 50 DC supply. Calculate the values of R_1 and R_2 resistance if power dissipated by unknown resistor R_2 is 150 watts with 5A passing through it. [5M]

(OR)

4. Determine the equivalent resistance between A and B(Across 5 ohm resistor) of the circuit shown below. 10M



5. a) Derive the EMF equation of a dc generator? [5M]
b) An 8-Pole wave connected DC generator has 1000 armature conductors and flux/pole is 0.035 wb. At what speed must it be driven to generate 500V? [5M]

(OR)

6. a) Write the types of DC Motors and derive the torque equation of a dc motor? [5M]
b) A single phase, 50Hz, 220/3000v transformer has a net-sectional area of core is 400 cm^2 if the peak value of flux density in the core is 1.239 tesla. Calculate the suitable values for the number of turns on the primary and secondary windings? [5M]
7. a) Explain the construction and working of a permanent magnet moving coil instruments? [5M]
b) Write various parts of 3-phase Alternator and explain the principle of operation of 3-phase alternator. [5M]

(OR)

8. a) What are the Essential devices required for the satisfactory operation of an indicating instruments ? [4M]
b) With the help of a neat Sketch ,explain the construction and operation of repulsive type Moving iron instruments? [6M]
9. a) Explain Half wave Rectifier showing input and output wave forms? [6M]
b)What is filter circuit and list out the different types of Filters? [4M]

(OR)

10. a) Explain Bridge rectifier circuit with neat diagram ? [6M]
b) Explain Zener diode and its characteristics? [4M]
11. Draw the common emitter circuit and sketch the input and output characteristics. Also,explain active region, Cut off region and saturation by indicating them on the characteristic curve ? [10M]

(OR)

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