GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING (Autonomous)

Approved by AICTE & Affiliated to Andhra University, Visakhapatnam from 2022-23
(Affiliated to JNTUK, Kakinada upto 2021-22)
Re-accredited by NAAC twice with 'A' Grade with a CGPA of 3.47/4.00
Madhurawada, Visakhapatnam - 530048

B. Tech. I Semester — **Branch: CSE**

MID-I

Course Title	**Basic Electrical & Electronics Engineering**	**Course Code**	**20EE11D3**
Date	**11-01-2023**	**Academic Year**	**2022-23**
Time	**90 min**	**Max. Marks**	**30**

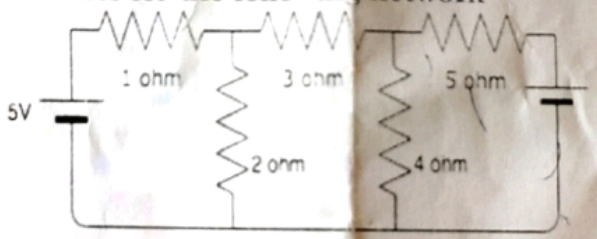
	1(a)	1(b)	2(a)	2(b)	3(a)	3(b)	4(a)	4(b)	5(a)	5(b)	6(a)	6(b)	Total Marks
CO	1	1	1	1	2	2	2	2	1	2	1	2	
Marks													

Answer All the Questions

3x10=30M

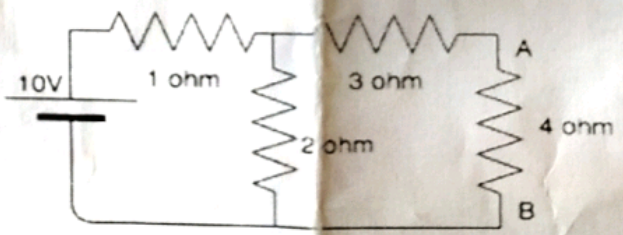
1(a) State and explain Kirchhoffs laws — 5M

(b) Obtain the mesh currents for the following network — 5M

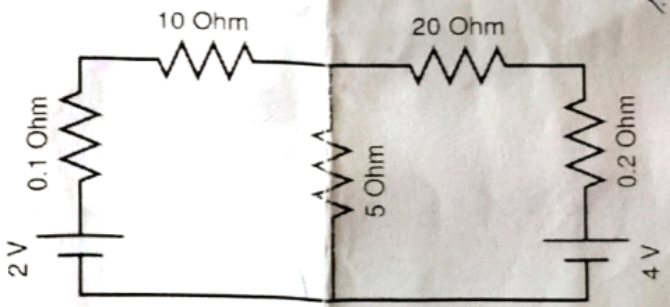


(OR)

2(a) Obtain the thevinins equivalent between the terminals A and B — 5M



(b) Find the current in 5 ohm resistor using superposition theorem — 5M



3(a) Derive the emf equation of DC generator — 5M

(b) Draw and explain the performance characteristics of DC Generator — 5M

(OR)

4(a) Derive the torque equation of DC Motor — 5M

Explain the performance characteristics of DC Motor — 5M

Roll No. 3 2 2 1 0 3 3 1 0 5 7 8

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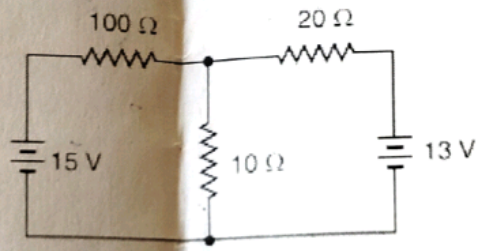
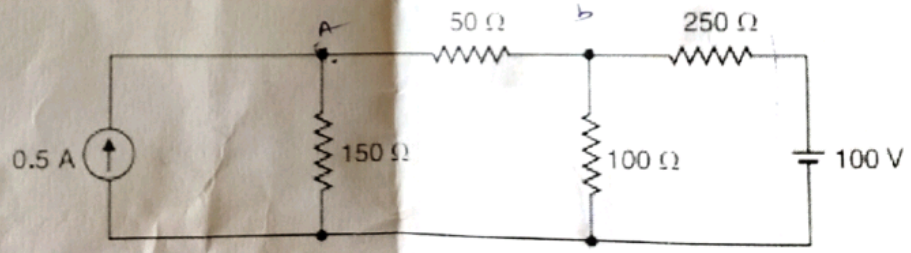
5(a) Apply source transformation to the entire network and obtain (voltage source in series with resistance or current source in parallel to resistance) 5M



(b) An 8-pole d.c. generator has 500 armature conductors, and a useful flux of 0.05 Wb per pole. What will be the e.m.f. generated if it is lap-connected and runs at 1200 rpm ? What must be the speed at which it is to be driven produce the same e.m.f. if it is wave-wound? 5M

(OR)

6(a) Obtain the node voltages 5M



b) In a brake test the effective load on the branch pulley was 38.1 kg, the effective diameter of the pulley 63.5 cm and speed 12 r.p.s. The motor took 49 A at 220 V. Calculate the output power and the efficiency at this load. 5M