



Mid Term (Odd) Semester Examination October 2024

Roll no.

Name of the Course and semester: B.Tech. CSE I
Name of the Paper: Basic Electrical Engineering
Paper Code: TEE-101
Time: 1.5 hour

Maximum Marks: 50

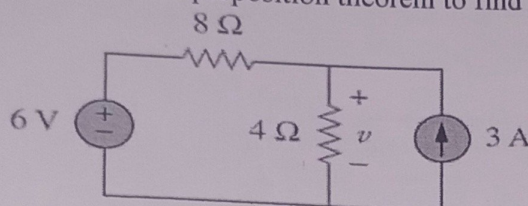
Note:

- Answer all the questions by choosing any one of the sub questions
- Each question carries 10 marks.
- Please specify COs against each question.

Q1.

- a. Use the Superposition theorem to find v in the circuit:

(10 Marks)
(CO2)



OR

- b. Explain with the help of diagram what you understand by in phase, lagging, and leading as applied to sinusoidal quantities.

(CO1)

Q2.

- a. Differentiate between the following:

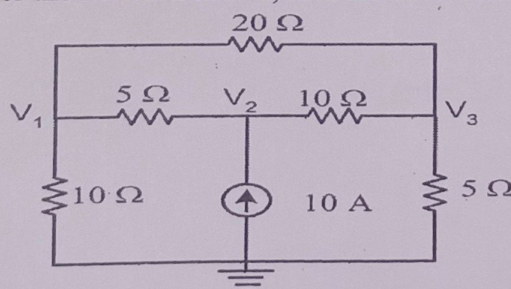
(10 Marks)
(CO3)

- Dependent and independent sources
- Loop and Mesh
- Unilateral and bilateral elements
- Linear and non-linear elements
- E.M.F. and potential difference

OR

- b. For the network shown, find the node voltages using nodal analysis:

(CO2)





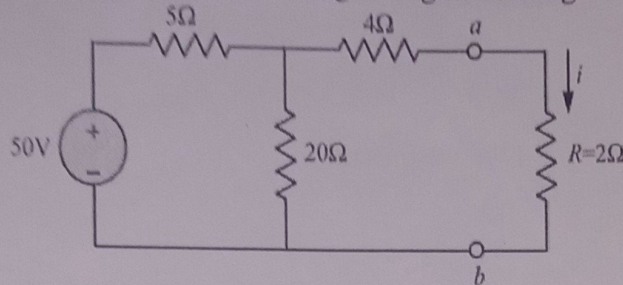
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Q3.

(10 Marks)

- a. Find the current flowing through $2\ \Omega$ using Thevenin's theorem:

(CO2)



OR

- b. For a pure sine waveform, derive expression of RMS and average value. Also calculate form factor and peak factor.

(CO1, CO2)

Q4.

(10 Marks)

- a. What do you understand by Maximum Power Transfer theorem? Prove that the efficiency obtained by maximum power transfer circuit is 50%.

(CO1, CO2)

OR

- b. If the form factor of a current waveform is 2 and the peak factor is 2.5, find the average value of the current if the maximum value of the current is 500 A.

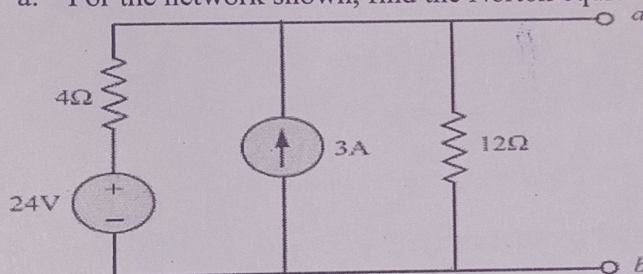
(CO2)

Q5.

(10 Marks)

- a. For the network shown, find the Norton equivalent circuit:

(CO2)



OR

- b. The equation of alternating voltage is given by $v = 325.22 \sin 314t$. Find (i) RMS value (ii) Frequency (iii) Average value

(CO2)