Graphic Era HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

Mid Term (Odd) Semester Examination October 2024

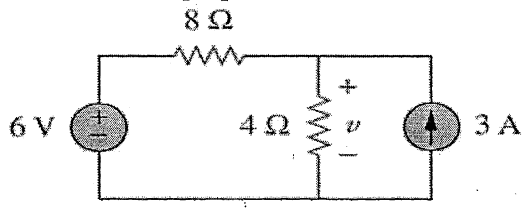
Roll no.....

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:
(i) Answer all the questions by choosing any one of the sub questions
(ii) Each question carries 10 marks.
(iii) Please specify COs against each question.

Q1. (10 Marks)

a. Use the Superposition theorem to find v in the circuit: (CO2)



OR

b. Explain with the help of diagram what you understand by in phase, lagging, and leading as applied to sinusoidal quantities. (CO1)

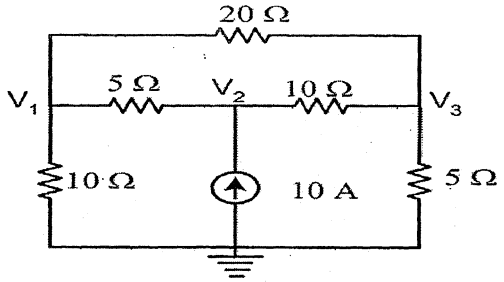
Q2. (10 Marks)

a. Differentiate between the following: (CO3)

i. Dependent and independent sources
ii. Loop and Mesh
iii. Unilateral and bilateral elements
iv. Linear and non-linear elements
v. E.M.F. and potential difference

OR

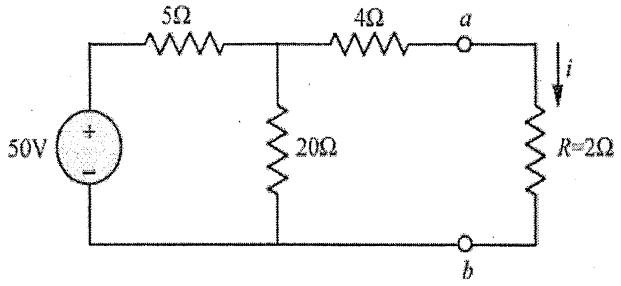
b. For the network shown, find the node voltages using nodal analysis: (CO2)



Mid Term (Odd) Semester Examination October 2024

Q3. (10 Marks)

a. Find the current flowing through 2 Ω 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)

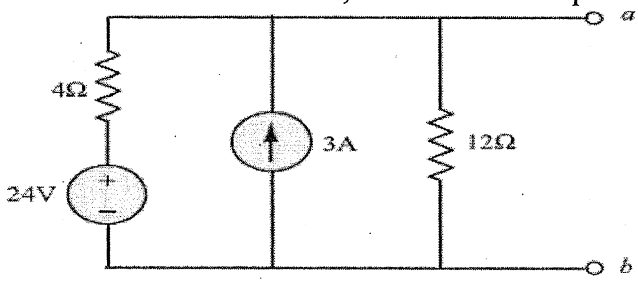
a. What do you understand by Maximum Power Transfer theorem? Prove that the efficiency obtained by maximum power transfer circuit is 50%. (CO1, CO2)

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 $sin314t$. (CO2)
Find (i) RMS value (ii) Frequency (iii) Average value