Important Guidelines:

1. All questions in this Academic Task are compulsory.

2. It is mandatory to attempt all questions of the assignment in your own handwriting on A4 size sheets/pages with a blue colour ink pen. Any other mode of attempt (typed or printed codes or table) except hand written/drawn will not be accepted/considered as valid submission(s) under any circumstances.

3. Every attempted sheet/page should carry clear details of student such as Name, Registration number, Roll number, Question number and Page number. The page numbers should be written clearly on the bottom of every attempted sheet in a prescribed format as: for page 1; **Page 1 of 4**, for page 2; **Page 2 of 4**, for page 3; **Page 3 of 4** and for page 4; **Page 4 of 4**, in case your assignment/document is of 4 pages.

4. After attempting the answer(s), student needs to take photograph of each of these answer sheets/pages and needs to convert the **jpeg** format images into a sequential single **pdf** format document (can be done with many free online available converters).

5. This PDF file should be uploaded onto the UMS interface on or before the last date of the submission.

6. Refrain from indulging into plagiarism as copy cases will be marked zero.

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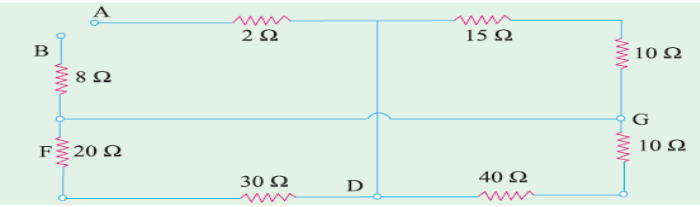
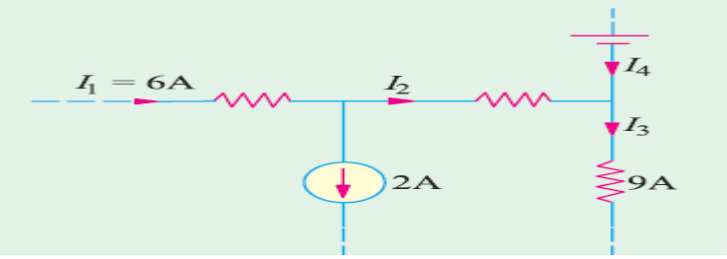
ECE 131(SET-A)
BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING
CA: Assignment-1

All questions are compulsory. Date of Submission: 21-09-2020
Max Marks: 30

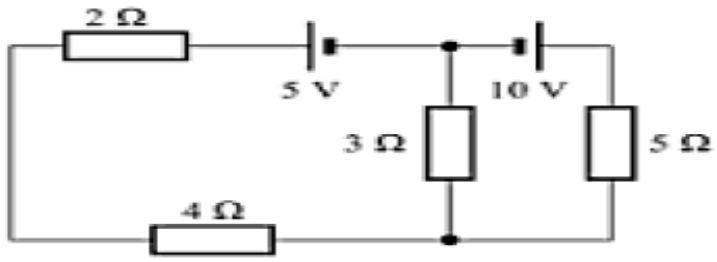
!. Calculate the resistance R_{AB} in the circuit.



2. Find the values of current I_2 and I_4

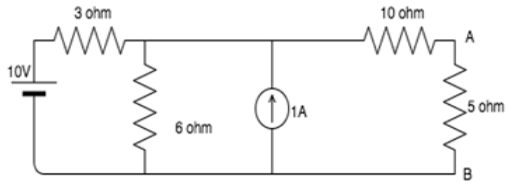


3. Determine the current through 3 ohm resistor in the circuit by using mesh analysis.



4. A coil having a resistance of 20 ohm and inductance of 0.2 H is connected in series with another coil of resistance of 30 ohm and inductance of 0.04 H to a 230V, 50 Hz supply. Determine (a) voltage across each coil. (b) power dissipated in each coil (c) power factor of whole circuit.

5. Reduce the following circuit into Norton's equivalent?



6. An inductive coil is connected in series with resistance of 60-ohm across 230V, 50 Hz ac supply. The voltage across the coil is 160V and across the resistance is 120Volts. Calculate (a) the resistance and inductance of the coil (b) power dissipated in the coil. Also draw the phasor diagram.

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ECE 131(SET-B)
BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING
CA: Assignment-1

All questions are compulsory. Date of Submission: 21-09-2020
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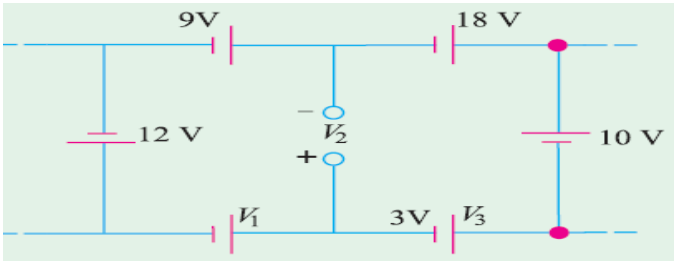
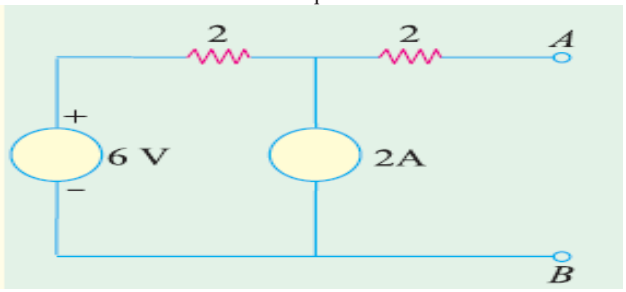
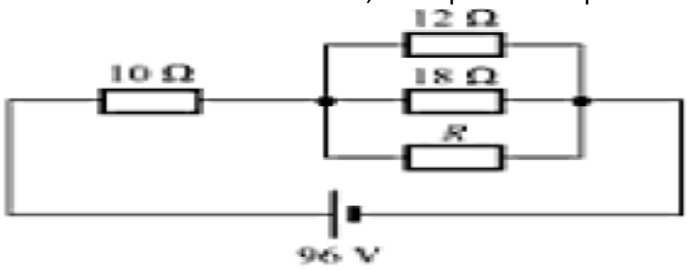
1. Use Kirchhoff's law, to find the values of voltages V_1 and V_2 in the network



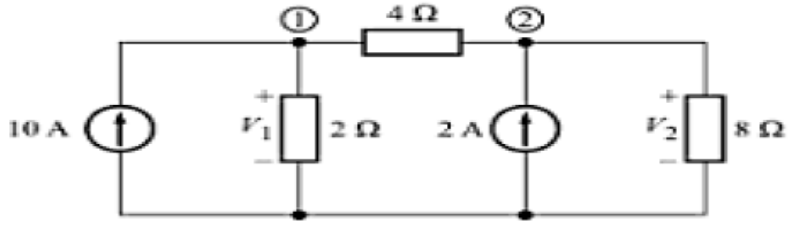
2. Find the Thevenin and Norton equivalent circuits for the active network All resistance are in ohms.



3. Determine the value of resistance R, if the power dissipated in 10 ohm resistor is 360 W in the circuit



4. Using Nodal Analysis, determine the voltages of nodes 1 and 2 for the circuit.



5. A 120 V, 20 Hz source is connected to a series circuit consisting of 5 ohm capacitive reactance, a 1.6 ohm resistor and a coil with resistance and inductive reactance of 3-ohm and 1.2-ohm respectively. Calculate (a) the input impedance (b) the circuit current.
6. A series RLC circuit consist of R= 1-ohm, L= 140 mH and C= 100 µF. Determine the frequency at which resonance occurs. If the applied voltage is 220V, 50 Hz , calculate the voltage drop across R,L and C.

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ECE 131(SET-C)
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CA: Assignment-1

All questions are compulsory. Date of Submission: 21-09-2020
Max Marks: 30

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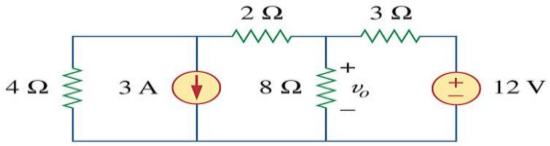
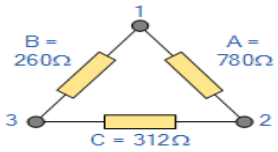
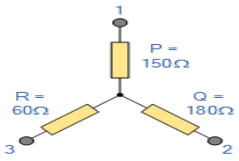
1. Calculate the voltage across 8 ohms resistance using source transformation. (5 marks)



2. (i)Using Star-Delta transformation convert the following (2.5 marks)

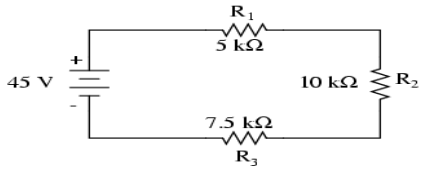


(a)Delta to Star

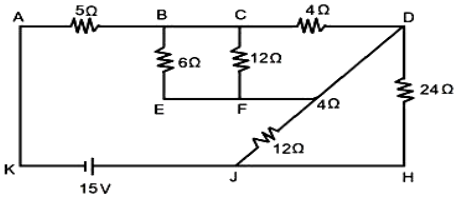


(b) Star to Delta

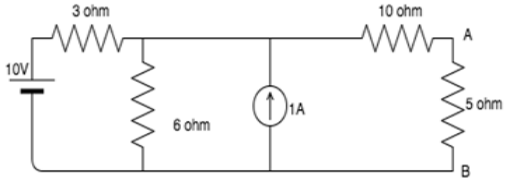
(ii) Using Voltage divider technique, find the voltage across each resistance (2.5 marks)



3. Find the total current flowing into the following circuit. (5 marks)



4. Reduce the following circuit into Norton's equivalent? (5 marks)



5. A series RLC circuit with R=20Ω, L=0.04H, C= 10μF connected across 220V, 50Hz. Write the expressions for instantaneous voltage and current equations at 30^0 phase difference. Also calculate the Impedance, current, power consumed by the resistor and energy stored in the inductor and capacitor. (5 marks)

6. A 100μF capacitor is connected across 220V, 50 Hz source. Calculate the reactance offered by the capacitor at fundamental and 140 Hz frequency, maximum current in the circuit, the average and r.m.s. value of the current drawn by the capacitor. (5 marks)

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ECE 131(SET-D)
BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING
CA: Assignment-1

All questions are compulsory. Date of Submission: 21-09-2020
Max Marks: 30

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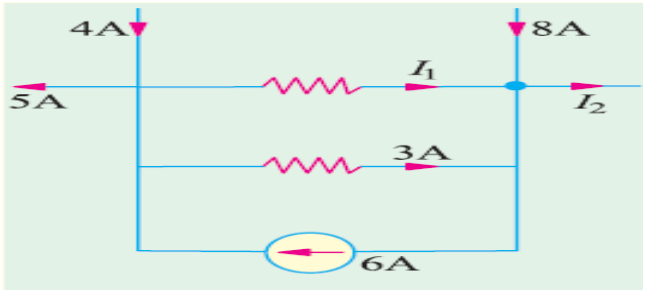
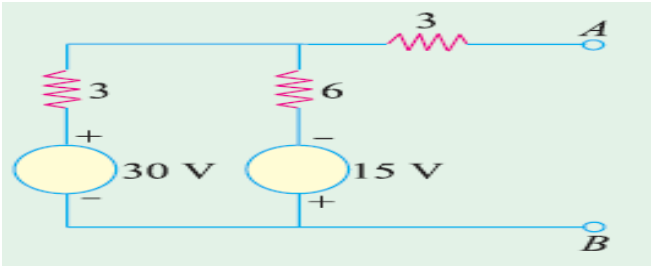
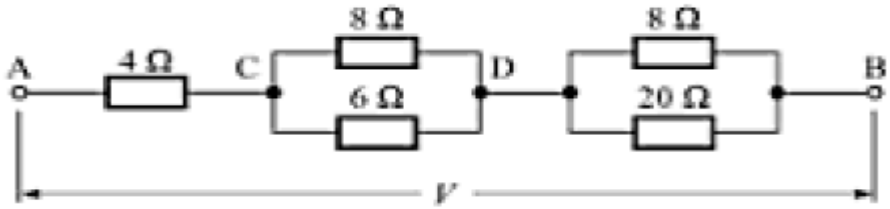
1. Find the unknown currents in the circuit



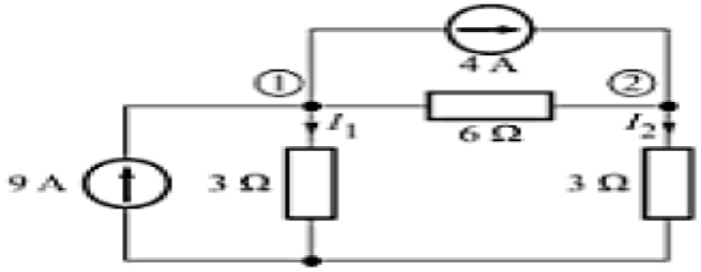
2. Find the Thevenin and Norton equivalent circuits for the active network All resistance are in ohms



3. The current in the 6 ohm resistor of the network is 2 Amp. Find the current in all other resistors and voltage across the network.



4. Using Nodal Analysis, determine the currents I_1 and I_2 for the circuit.



5. A 120 V, 20 Hz source is connected to a series circuit consisting of 5 ohm capacitive reactance, a 1.6 ohm resistor and a coil with resistance and inductive reactance of 3-ohm and 1.2-ohm respectively. Calculate (a) voltage across the coil (b) the resonant frequency.
6. A coil having a resistance and inductance of 5-ohm and 32 mH respectively is connected in series with 796pF capacitor. Determine the resonant frequency of the circuit.

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ECE 131(SET-E)
BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING
CA: Assignment-1

All questions are compulsory. Date of Submission: 21-09-2020
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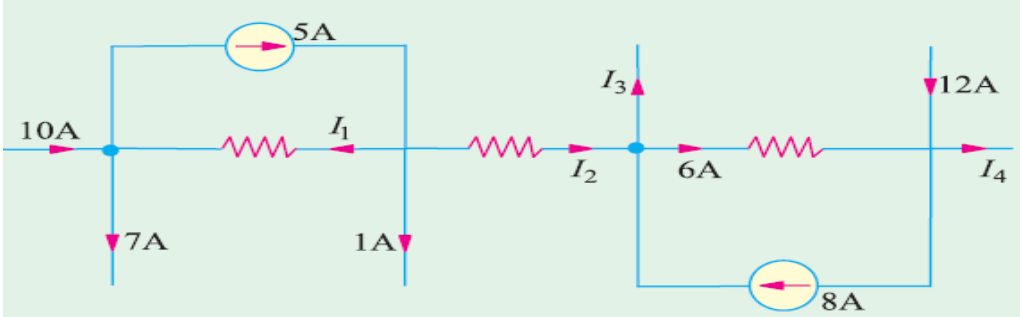
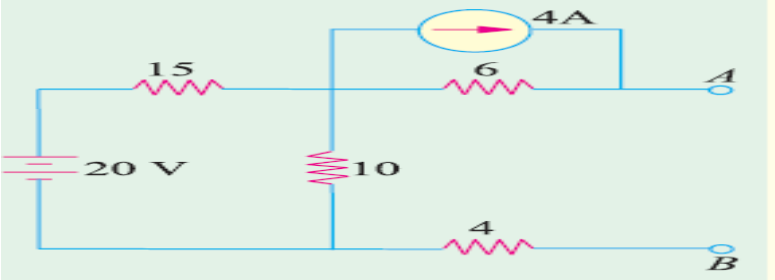
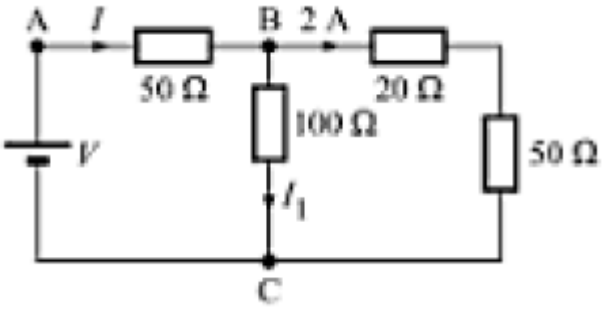
1. Using KCL, find the values of the unknown current



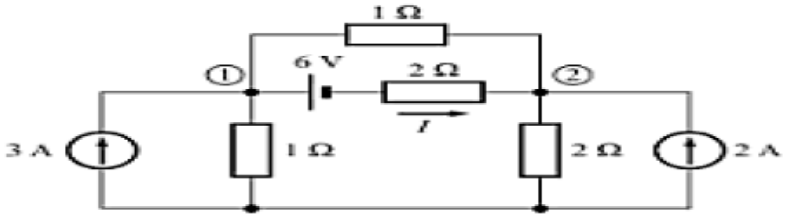
2. Find the Norton equivalent circuits for the active network All resistance are in ohms



3. Find the voltage V for the circuit



4. Using Nodal Analysis, determine the current I for the circuit.



5. A 100μF capacitor is connected across 220V, 50 Hz source. Calculate the reactance offered by the capacitor at fundamental and 140 Hz frequency, maximum current in the circuit, the average and r.m.s. value of the current drawn by the capacitor.
6. A coil having a resistance and inductance of 5-ohm and 32 mH respectively is connected in series with 796pF capacitor. Determine the resonant frequency of the circuit.