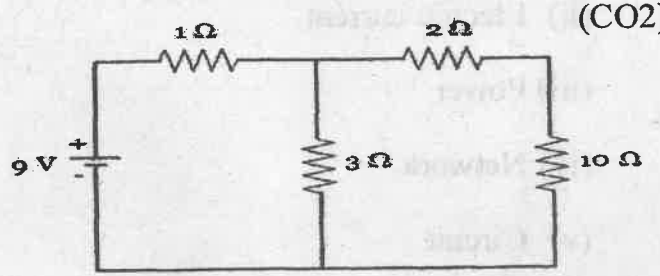
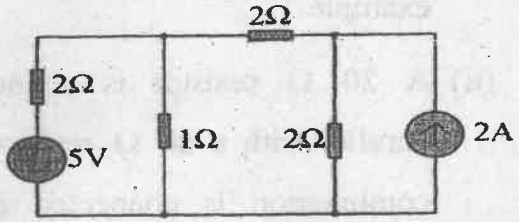
(ii) For the given circuit, determine the current flowing through 10 Ω Resistor using Norton's theorem. (CO2)



OR

(b) Find current in 1 ohm resistance using nodal analysis. (CO2)



5. (a) What is power ? Define Active, Reactive and Apparent Power with Power triangle. (CO2)

OR

(b) Derive the RMS and Average values of a single-phase AC. (CO2)

H Roll No. .....

TEE–201

B. TECH. (SECOND SEMESTER)

MID SEMESTER

EXAMINATION, April, 2023

BASIC ELECTRICAL ENGINEERING

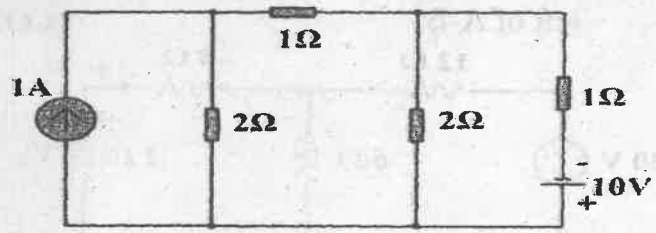
Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any ***one*** of the sub-questions.

(ii) Each sub-question carries 10 marks.

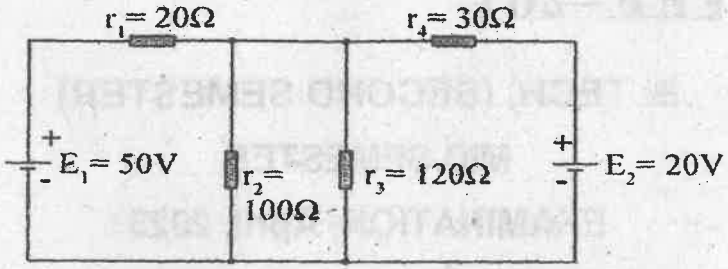
1. (a) Using mesh analysis, obtain the current through the 10 V battery for the circuit shown in figure : (CO2)



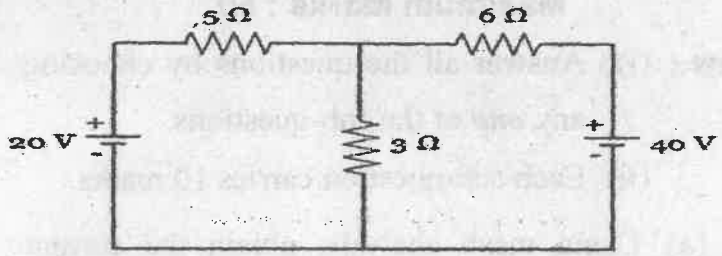
P. T. O.

OR

(b) Calculate current in r_2 using nodal analysis. (CO2)

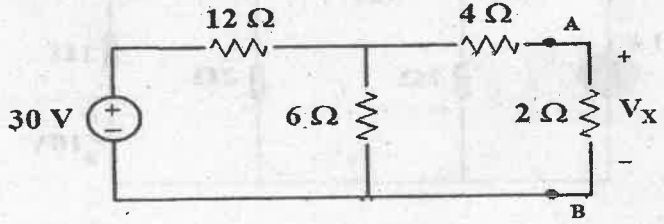


2. (a) Calculate current in 3-ohm resistor using superposition theorem. (CO2)



OR

(b) Find V_x by first finding V_{TH} and R_{TH} to the left of A-B. (CO2)



3. (a) Define the following : (CO1)

(i) Charge

(ii) Electric current

(iii) Power

(iv) Network

(v) Circuit

OR

(b) (i) Explain Kirchhoff's Law with example.

(ii) A 20 Ω resistor is connected in parallel with a 60 Ω resistor. If the combination is connected across a 30 volts battery supply, find the current flowing through each resistor and the total current supplied by the source. (CO1)

4. (a) (i) Differentiate between Thevenin's and Norton's theorem.