

Federal University of Technology Minna
School of Technology Education
Industrial and Technology Education Department

First Semester Examination, 2012/2013 Session

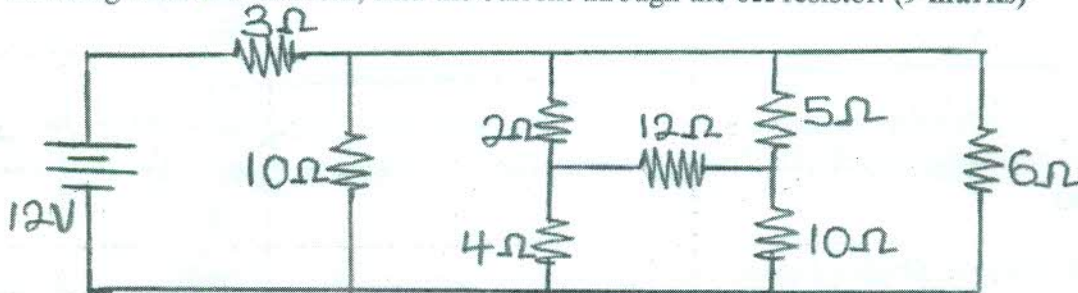
Course: - Circuit Theory (IET 313)

Duration:- 2 hours.

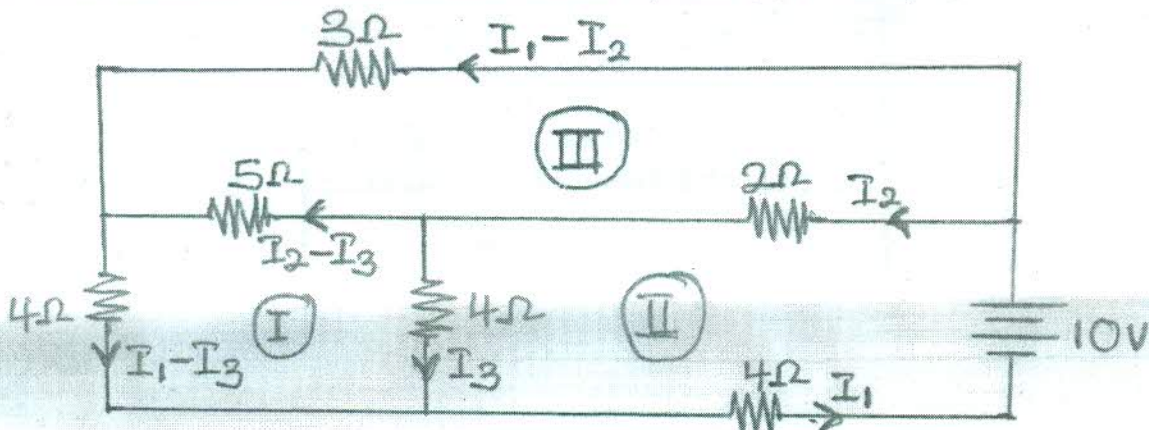
Instruction:- Answer all Questions in Section A and any two Questions from Section B

Section A

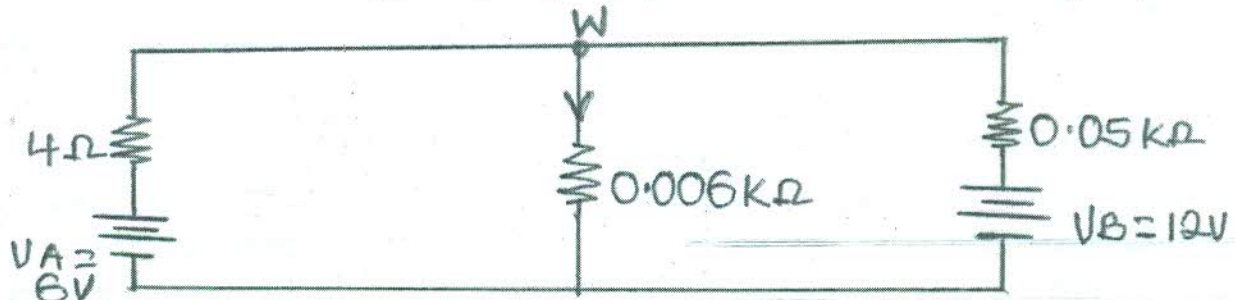
1a. Using Norton's theorem, find the current through the 6Ω resistor. (9 marks)



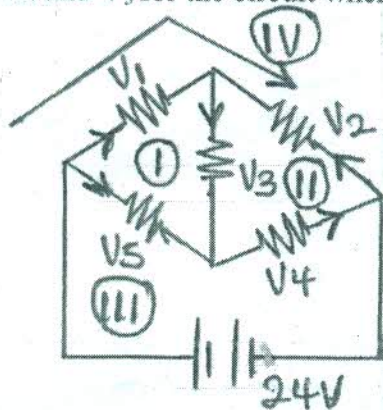
1b. Using Kirchhoff's laws calculate the currents I_1 , I_2 and I_3 (11 marks)



2a. Determine the value of I_1 , I_2 and I_3 using Superposition theorem and Nodal analysis. (14 marks)



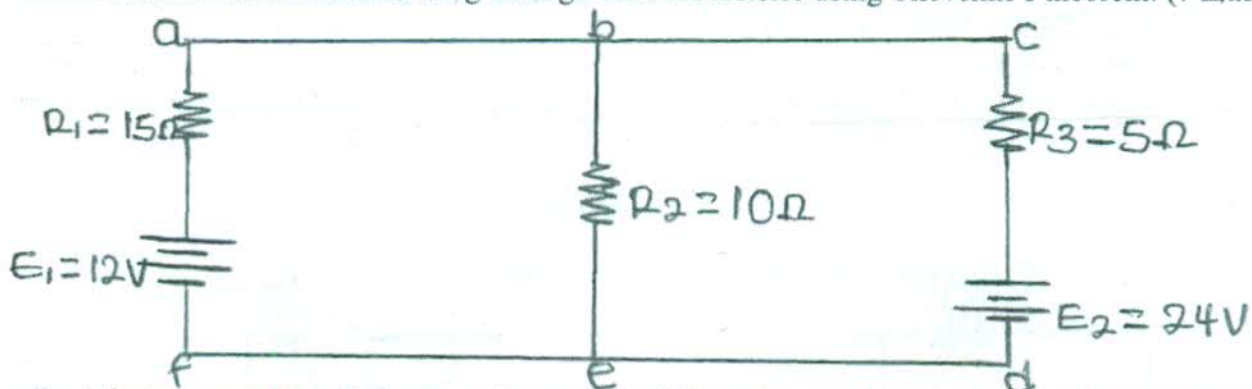
2b. Find the value of V_1 , V_4 and V_5 for the circuit when $V_2 = 8V$ and $V_3 = 6V$ (6 marks)



Section B

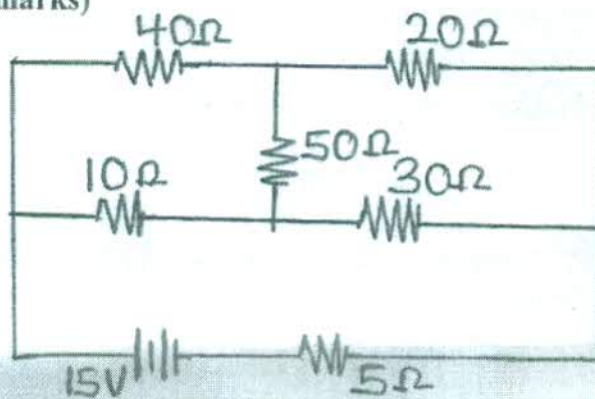
3a. With the aid of diagram shows the classification of electrical network and explain each term. (10 marks)

4a. Determine the current I flowing through the 10Ω resistor using Thevenin's theorem. (7 marks)



4b. A battery consists of sixteen cells connected in series, each having an e.m.f of $1.5V$ and the internal resistance of 0.15Ω . Calculate the maximum power transferred to an external load. (3 marks)

5a. In the network shown below, find the current supplied by the battery using star/delta transformation. (7 marks)



5b. Define Thevenin's voltage and Thevenin's resistance. (3 marks)

// Wish you Success//