Mahindra University École Centrale School of Engineering
Hyderabad

Program: B.Tech. Branch: AI/CSE/CM/CE/ME/MT/NT/CB/BT Year: I Semester: I

End term Examination (Fractal)

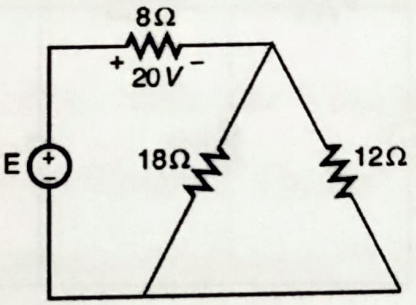
Subject: EE1103 Introduction to Electrical Engineering

Date: *10.11.2022* Time: *02.00 PM to 04.00 PM*

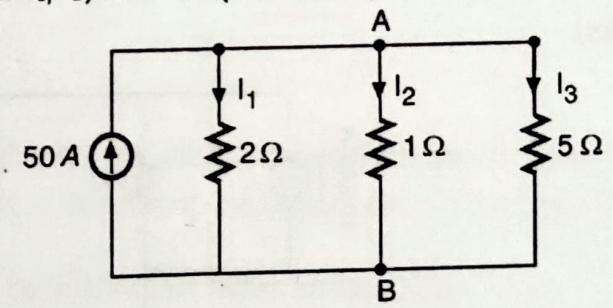
Time Duration: *2:00 Hours* Max. Marks: 100

Note: There are 5 questions, all of which are compulsory.

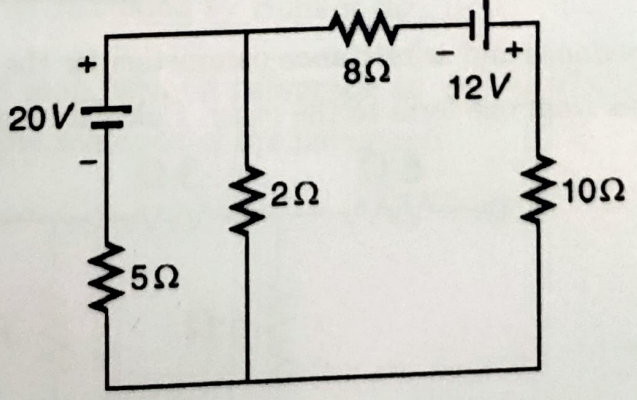
Q 1 (a) In the circuit below, determine the current ***through the 12Ω resistor***. Also, calculate the supply voltage, ***E. (10 marks)***



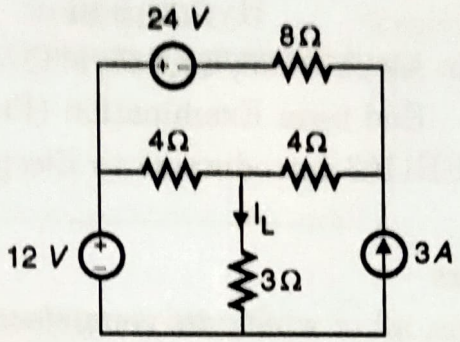
(b) In the circuit below, find I_1, I_2, and I_3. ***(10 marks)***



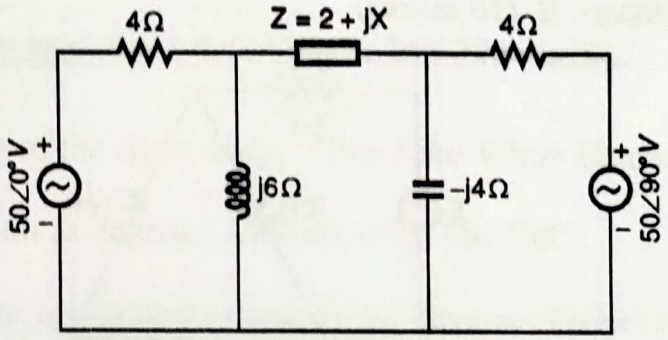
Q 2 Find the current flowing through the 10Ω resistor by first finding the ***Thevenin equivalent circuit. (20 marks)***



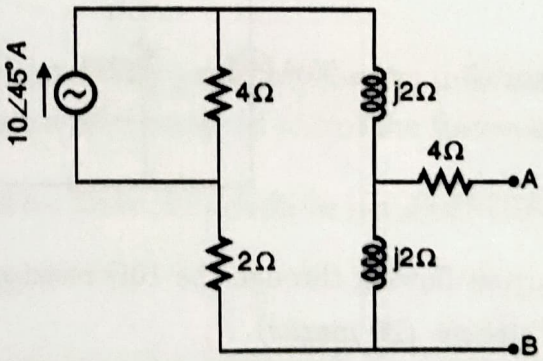
Q 3 Use ***superposition*** to find the current through the 3Ω resistor. (*You must use the principle of superposition only to solve this problem.*) ***(20 marks)***



Q 4 (a) **Z** is the load and has a fixed resistance of 2Ω and a variable reactance jX. Determine the value of X for maximum power transfer to load. ***(10 marks)***



(b) Determine the ***impedance*** to be connected between A-B for maximum power transfer. ***(10 marks)***



Q 5 Find the ***impedance*** and ***admittance*** parameters for the given network. (Do not convert the parameters from one form to the other. Calculate both individually) ***(20 marks)***