BEF2023012

ABV-INDIAN INSTITUTE OF INFORMATION TECHNOLOGY & MANAHEMENT GWALIOR

B.Tech CS/BMS/EEE (Academic Session: 2023-2024)
Fundamental of Electrical and Electronics (EE-101)
Minor Exam

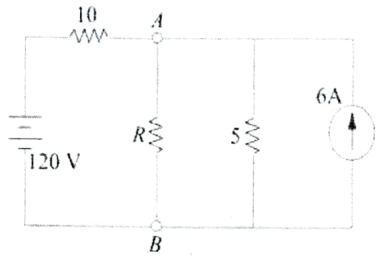
Date: 23/09/2023
Time: 10 AM -12 Noon

Duration: 2 Hour | **Semester - I**
Max. Marks: 40 | **Faculty: Dr. Pinku Ranjan**

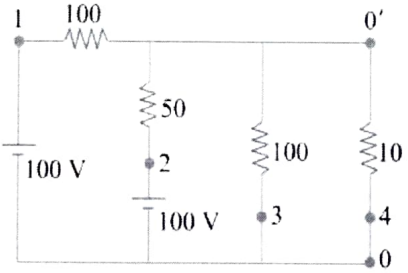
Important Instructions:

- **This is a closed book, closed notes examination.**
- **This question paper comprises a total of 7 questions.**
- **All the questions are compulsory and attempt all questions in sequence.**
- **All notations have their usual meanings.**

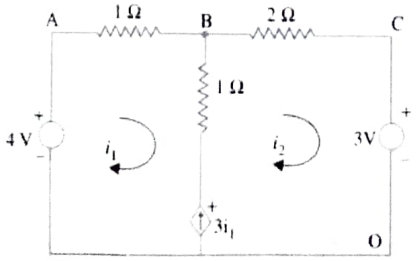
1. Calculate the value of R which will absorb maximum power from the circuit in below Fig., Also, compute the value of maximum power. **(5 Marks)**



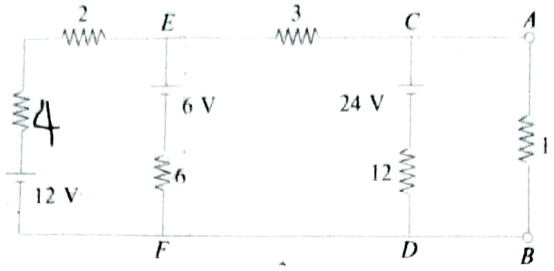
2. Calculate the voltage across the 10 Ω resistor in the network below Fig. by using (a) Millman's theorem (b) any other method. **(10 Marks)**



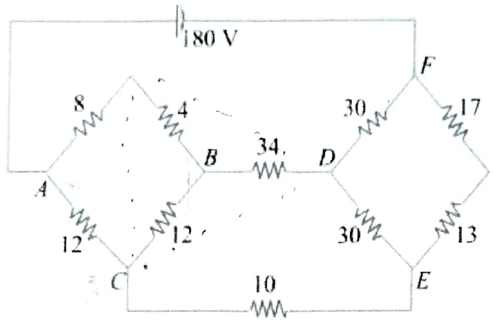
3. Find Mesh currents i1 and i2 in the electric circuit in below Fig. **(5 Marks)**



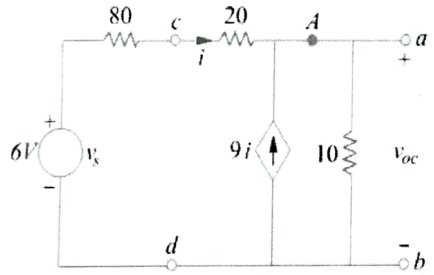
4. Using Norton's theorem, compute current through the 1-Ω resistor of below Fig. **(5 Marks)**



5. Calculate the current flowing through the 10 Ω resistor in below Fig. by using any method. **(5 Marks)**



6. Determine the Thevenin's equivalent circuit as viewed from the open-circuit terminals a and b of the network shown in below Fig.. All resistances are in ohms **(5 Marks)**



7. The resistance of the wire used for telephone is 35 Ω per kilometre when the weight of the wire is 5 kg per kilometre. If the specific resistance of the material is 1.95×10^{-8} Ω-m, what is the cross-sectional area of the wire ? What will be the resistance of a loop to a subscriber 8 km from the exchange if wire of the same material but weighing 20 kg per kilometre is used? **(5 Marks)**