

NEPAL COLLEGE OF INFORMATION TECHNOLOGY

Semester : Fall

Level: Bachelor

Year: 2021

Programme: IT Day , ELx, CE Day Morning

Full Marks: 70

Course: Basic Electrical Engineering

Pass Marks:30

Time : 2 hrs

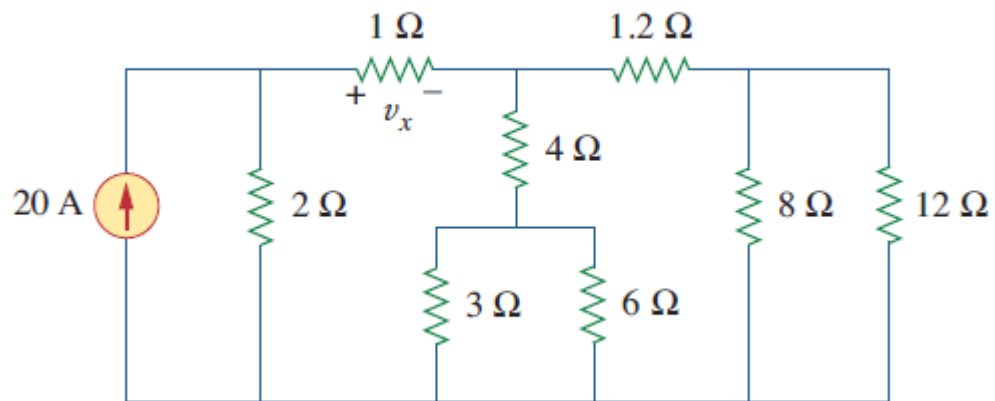
Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

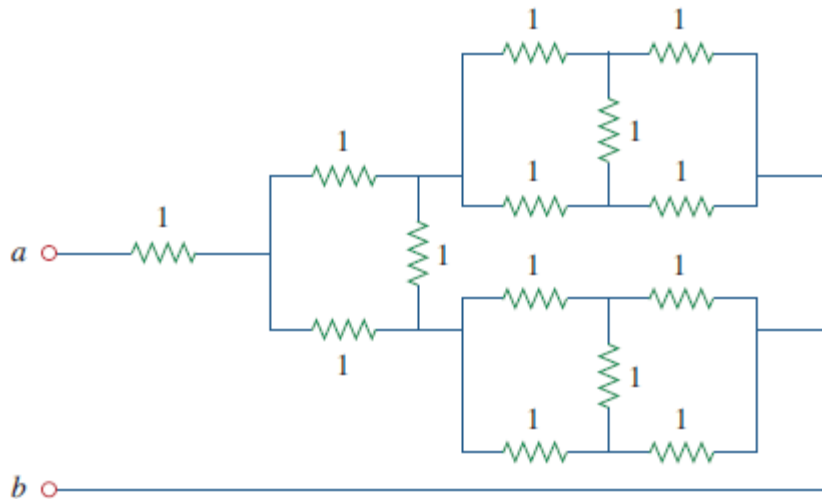
Assume any value if necessary.

Attempt all the questions.

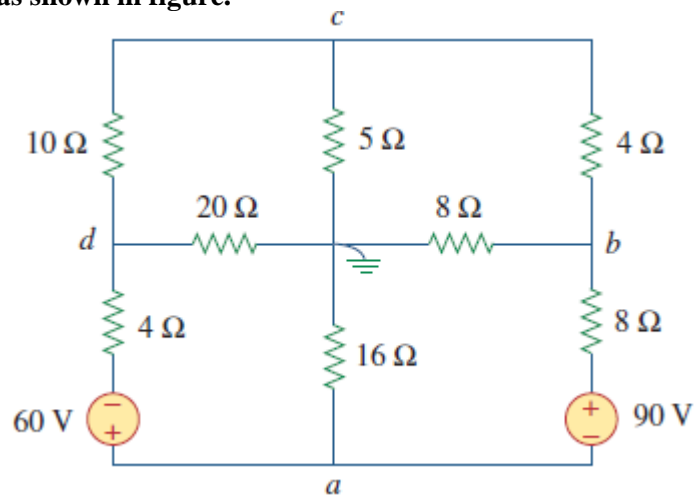
- 1 In the following circuit, determine v_x and the power absorbed by the $12\ \Omega$ resistor. 10



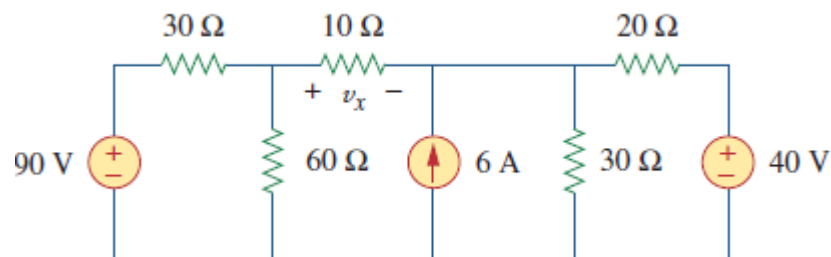
- 2 Obtain the equivalent resistance R_{ab} in the following circuit. Assume each element is 1 Ohm. 10



- 3 Find the voltages at nodes a, b, c and d using nodal analysis. **Assume reference node** 10
as shown in figure.

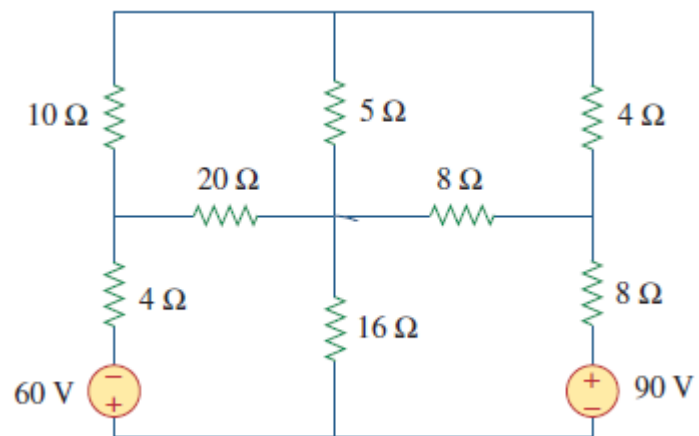


- 4 Explain Nodal analysis with example of supernode. 10
- 5 Determine v_x in the circuit below using the superposition principle. Does superposition 10
 principle apply to power in DC theorem? Give a reason.



6 Using mesh analysis, find the current flowing through 5 Ohm resistor.

10



7 Write short notes on following with example.

10

- a) Kirchoff's Current Law
- b) Mesh Analysis