SHIVAJI COLLEGE, UNIVERSITY OF DELHI

DEPARTMENT OF PHYSICS

INTERNAL TEST (Academic Year: 2023-24)

Name of the Course:	B.Sc. (H) Physics	**Semester:**	II
Name of the Paper:	Electrical Circuit Analysis	**Duration:**	$1\frac{1}{2}$ Hours
Faculty Name:	Dr. Surendra Kumar	**Maximum Marks:**	12
Date of Test:	16.04.2024		

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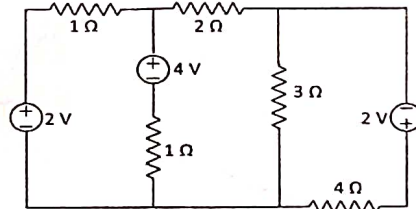
Instructions

- *Write your Roll No., Name, Date, Semester, Course and Name of the paper on the top of the answer sheet.*
- *All questions carry equal marks.*
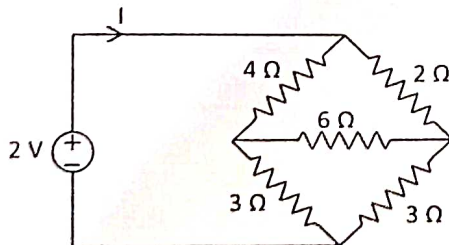- *Attempt any Six questions.*

Questions

1. Using voltage division, calculate V_1 and V_2 in the network shown in Fig.
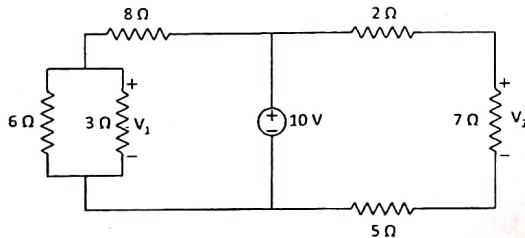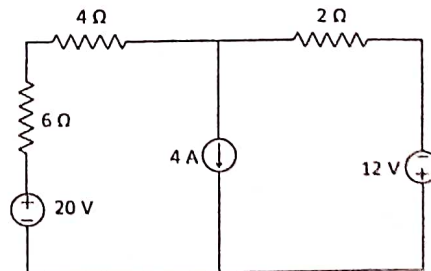

2. Write the mesh equations for the network in the Fig

3. Determine the value of current I in the given diagram by using Star-delta conversion method.
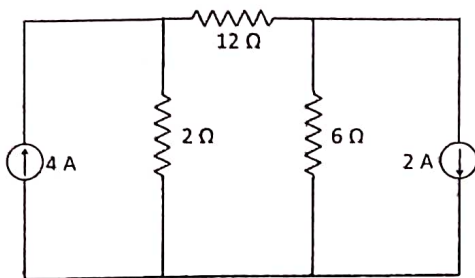

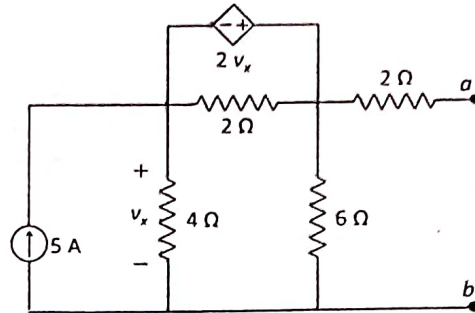4. Using mesh analysis, determine the currents of the network in Fig.
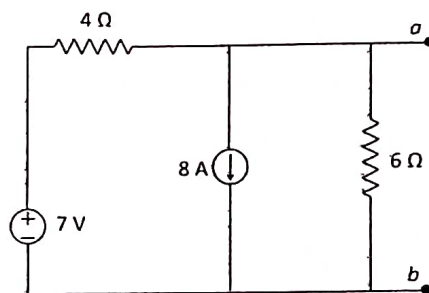

P.T.O.

5. Determine the nodal voltages for the network in Fig.

6. Find the Thevenin equivalent of the circuit in Fig. at terminals *a-b*.

7. Find the Norton equivalent circuit for the portion of the network to the left of *a-b* in Fig.

8. (i) Define reciprocity and Millman's theorems.

(ii) What do you understand by principle of duality.