Term Evaluation (Odd) Semester Examination September 2025

Roll no.....

Name of the Course: B.Tech
Semester: I
Name of the Paper: Basic Electrical Engineering
Paper Code: TEE 101
Time: 1.5 hour **Maximum Marks: 50**

Note:
(i) Answer all the questions by choosing any one of the sub-questions
(ii) Each question carries 10 marks.

Q1. (10 Marks) (CO1)

a. Define the following terms along with suitable examples:
(i) Unilateral and Bilateral Elements
(ii) Active and Passive Elements
(iii) Linear and Non-linear elements
(iv) KCL & KVL

OR

b. Find the total resistance between the terminals "a" and "b" of the circuit shown in fig. 1

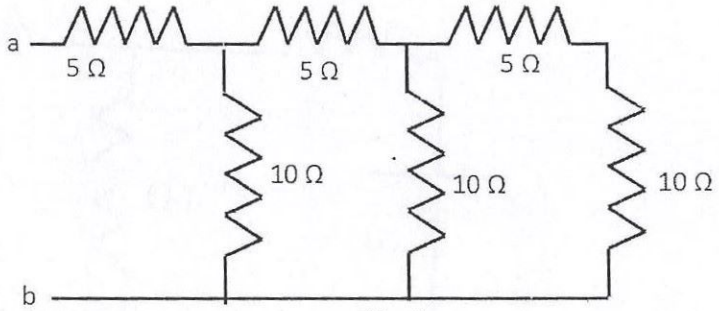

Fig. 1

Q2. (10 Marks) (CO1)

a. Find out Nodal voltages and current flowing from V_1 to V_2 in the circuit shown in fig 2 (a) with the help of Nodal analysis.

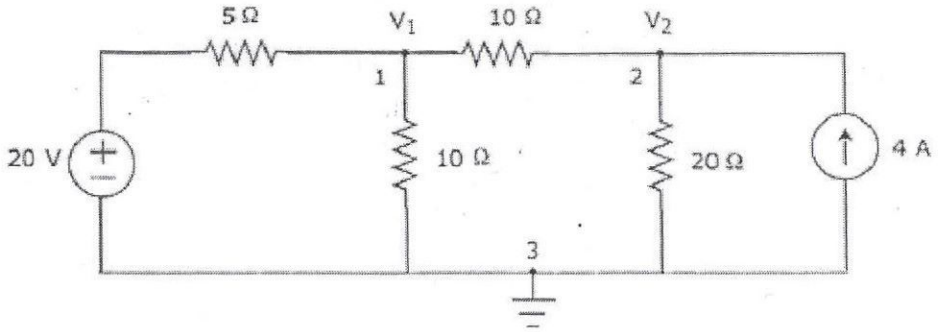

Fig. 2(a)

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OR

b. Find out mesh currents and current in R2 resistance for the given electrical circuit shown in fig. 2 (b) using mesh analysis.

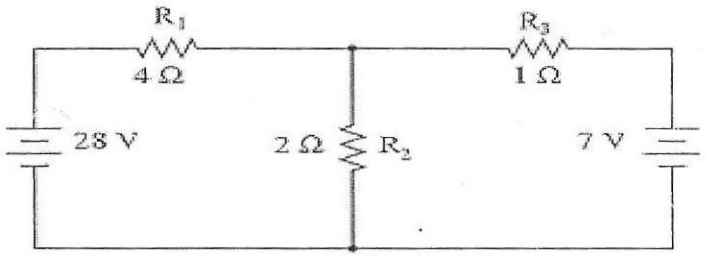

Fig. 2(b)

Q3. (10 Marks) (CO1)

a. Define Thevenin's Theorem. Describe the steps to solve an electric network using Thevenin theorem.

OR

b. Calculate the current through 4Ω resistance in the given network shown in fig. 3 using Thevenin's Theorem.

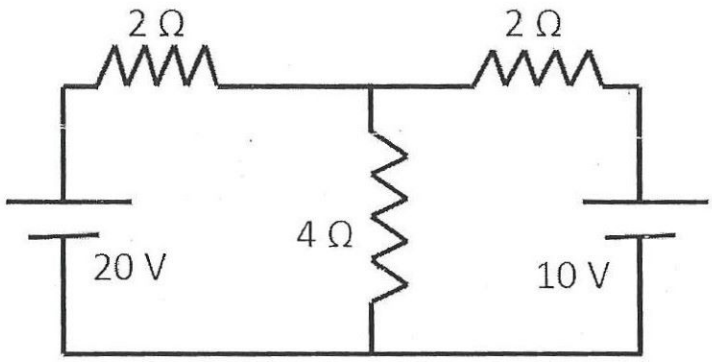

Fig 3

Q4. (10 Marks) (CO1)

a. Determine the current in the branches of the network shown in fig 4(a) using Superposition Theorem.

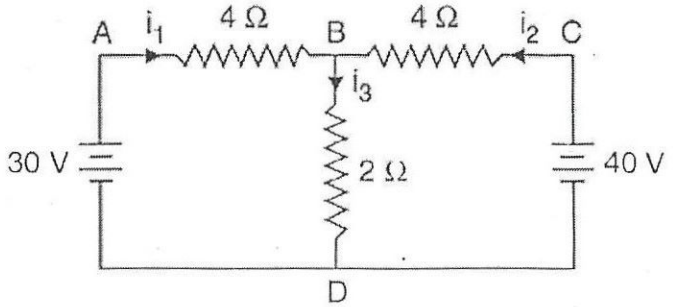

Fig. 4(a)

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OR

b. Find out current in 5Ω resistor with the help of Norton's Theorem in the circuit shown in fig 4(b).

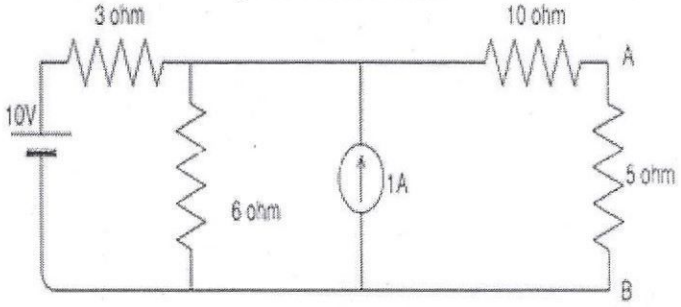

Fig 4(b)

Q5. (10 Marks) (CO1)

a. Fig. 5(a) shows one node of an electric circuit. Find v_2.
Given $i_1 = 4A$, $v_3 = 3V$, $v_4 = 8V$

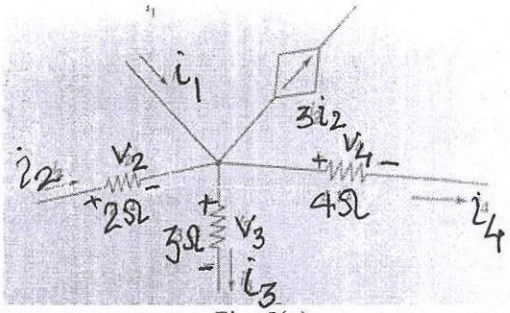

Fig. 5(a)

OR

b. Consider the loop in fig. 5 (b) which forms part of an electric circuit. Find i_4.
Given $v_1 = 6V$, $i_2 = 2A$, $i_3 = 4A$

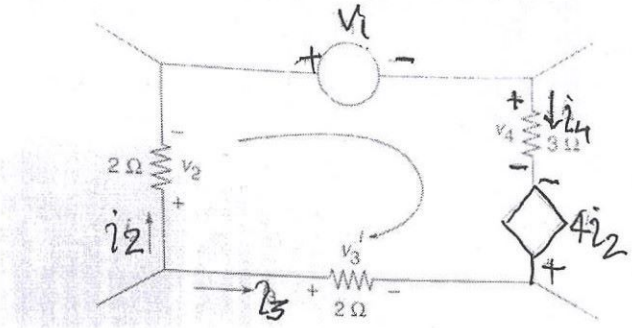

Fig. 5(b)