C16-EC–305

6236

BOARD DIPLOMA EXAMINATION, (C-16)

MAY/JUNE—2023

DECE - THIRD SEMESTER EXAMINATION

NETWORK ANALYSIS

Time : 3 Hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Define active and passive elements.

2. State Ohms law and write its limitations.

3. Define the terms 'junction', 'loop', and 'mesh' in circuit.

4. Write about duality of network.

5. State NORTON's theorem.

6. Write the transformation formulae for star to delta transformation.

7. Define Laplace transform.

8. Write the Laplace transform of the following functions :

(a) Unit step

(b) Exponential

(c) Sine

9. Define the terms neper and decibel.

10. List different types of attenuators.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

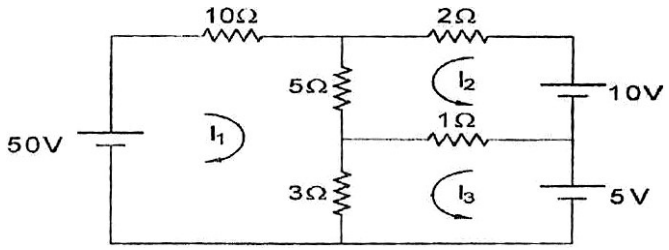
(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

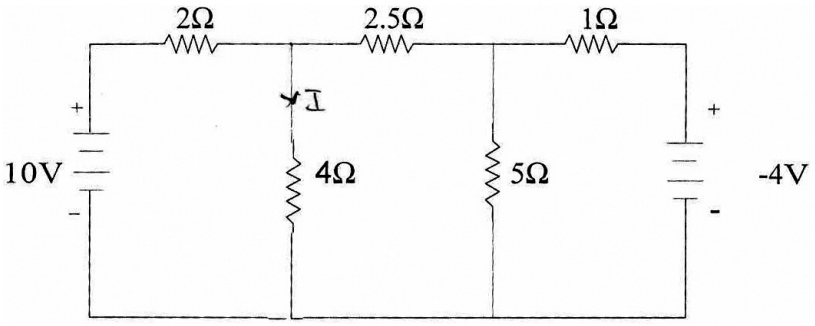
11. *(a)* State Kirchhoff's current law and Kirchhoff's voltage law. 4

(b) Explain about conversion of ideal voltage source to ideal current source and vice versa. 6

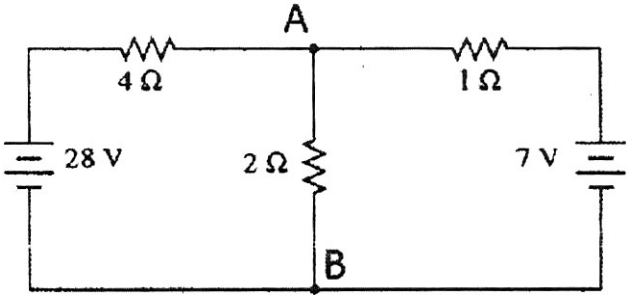
12. Determine the power absorbed by 5Ω resistor in the circuit shown below by using mesh analysis. 10



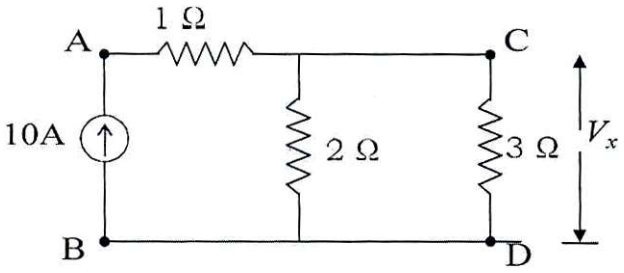
13. Find the current through 4-ohm resistor by using node voltage analysis. 10



14. Draw the Thevenin's equivalent network for the given network between A and B. Find also current through 2-ohm resistor. 10



15. Verify the reciprocity theorem for the network given below : 10



16. Explain the DC response of an *RLC* circuit. 10

17. Explain initial value theorem and final value theorem. 10

18. Define LPF, HPF, BPF and BSF. Also draw characteristic curves for these filters. 10

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