6236

BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2021

DECE - THIRD SEMESTER EXAMINATION

NETWORK ANALYSIS

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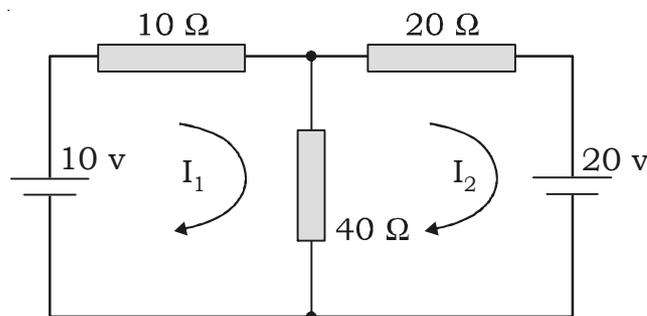

PART—A   3×10=30

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.   Write about ideal voltage source.

3.   Define the terms branch, node and loop in circuits.

4.   Write the mesh current equations for a given network.

5. State superposition theorem.

6. List the advantages and limitations of Thevenin's theorem.

7. Define the terms initial condition and transient condition.

8. Write properties of Laplace Transform Linear property, First shifting property.

9. Define the terms neper and decibel.

**10.** List the disadvantages of constant K filters.

PART—B

**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.
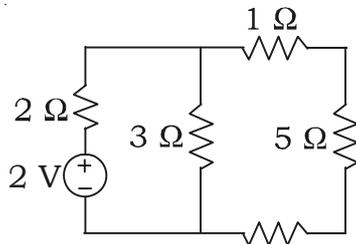
11. *(a)* Convert ideal voltage source to ideal current source and vice versa. 5

(b) State Kirchhoff's current law and Kirchhoff's voltage law. 5

12. Solve for mesh currents using Crammer's rule for the given network below. 10
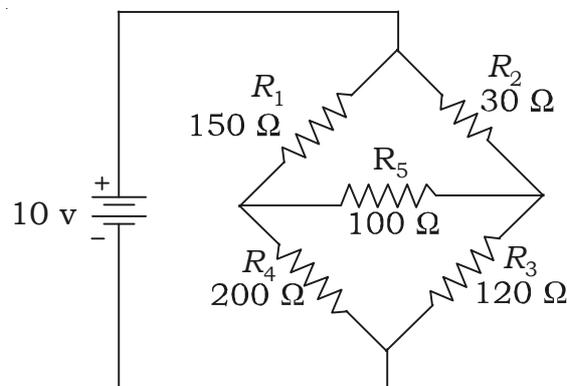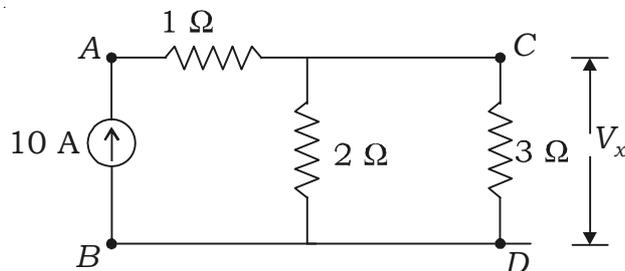
13. Solve for node voltage at *A* for the given network below : 10
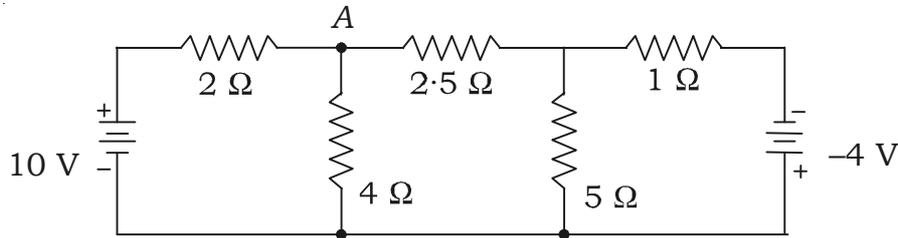
14. Draw the Norton's equivalent network across 3 ohms resistor. 10

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

16. Explain Heaviside's expansion theorem. 10

17. Derive expression for current, voltage across capacitor in an series RC circuit. 10

18. Define filter, LPF, and BSF and draw the characteristic curves for these filters. 10

★ ★ ★