



C16-EC-305

6236

BOARD DIPLOMA EXAMINATION, (C-16)  
AUGUST/SEPTEMBER—2021  
DECE - THIRD SEMESTER EXAMINATION  
NETWORK ANALYSIS

Time : 3 hours ]

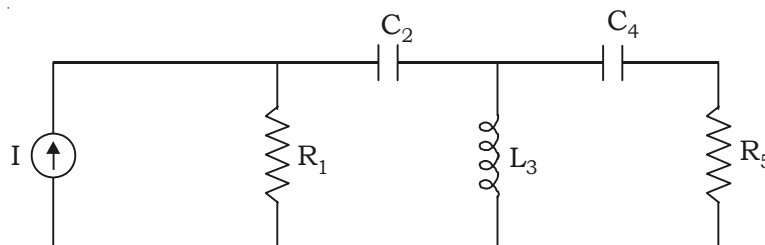
[ Total Marks : 80

**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. State ohm's law and mention any two limitations.
3. Define the terms branch, junction and loop in circuits.
4. Draw the dual of the given network.



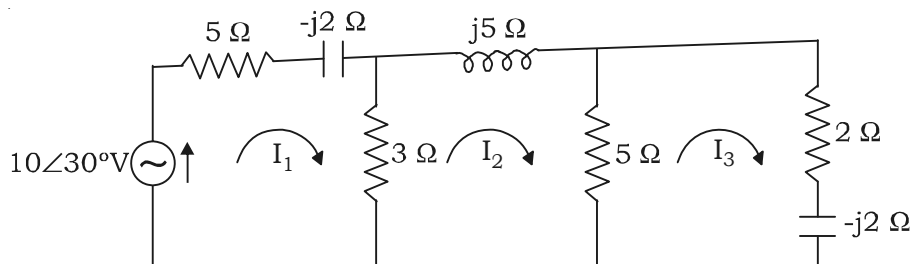
5. State the maximum power transfer theorem for DC circuits.

6. Give the transformation formula from star to delta configuration.
7. Define the following terms :
  - (a) Steady state
  - (b) Transient
8. Define initial value theorem.
9. Define the following terms :
  - (a) Characteristic impedance
  - (b) Propagation constant
10. State the function of attenuator circuit.

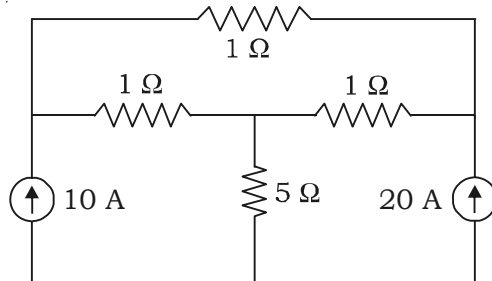
### PART—B

- 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.

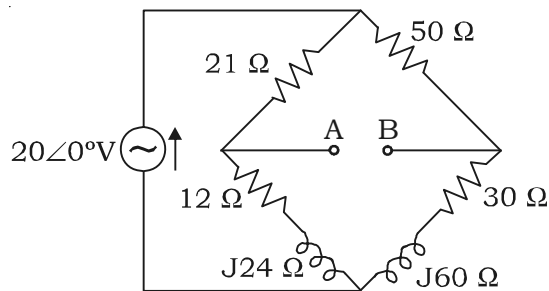
11. (a) Explain about ideal voltage source and ideal current source. 6  
 (b) State Kirchhoff's current law and Kirchhoff's voltage law. 4
12. Write the mesh current equations in matrix form for the circuit shown below and also determine the values of the currents  $I_1$ ,  $I_2$  and  $I_3$ . 10



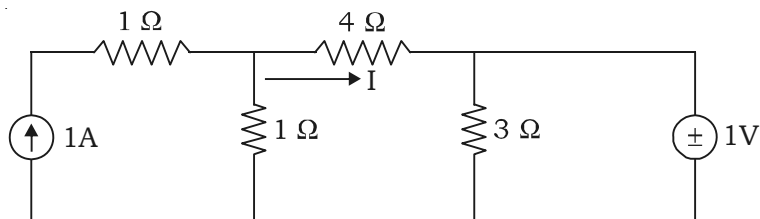
13. Find the current in the  $5\Omega$  resistor for the circuit shown below using nodal analysis. 10



14. Obtain Thevenin's equivalent circuit for the bridge circuit shown below. 10



15. Find the current  $I$  in the circuit shown below using superposition theorem. 10



- \* 16. Explain the DC response for a series RL circuit. 10
17. Explain second shifting property with examples. 10
18. Explain T attenuator with a circuit diagram. 10

★ ★ ★