



C14-EC-403

4457

BOARD DIPLOMA EXAMINATION, (C-14)
MARCH/APRIL—2018
DECE—FOURTH SEMESTER EXAMINATION
NETWORK ANALYSIS

Time : 3 hours]

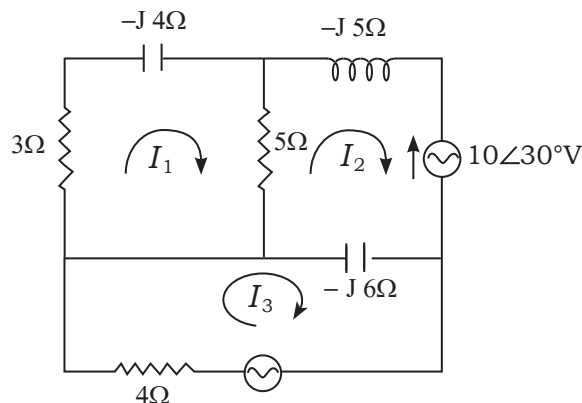
[Total Marks : 80

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. Distinguish between Active and Passive elements.
2. State Kirchoff's voltage law and Kirchoff's current law.
3. Define branch, node and loop of a network.
4. Write the mesh current equations of the network given below.



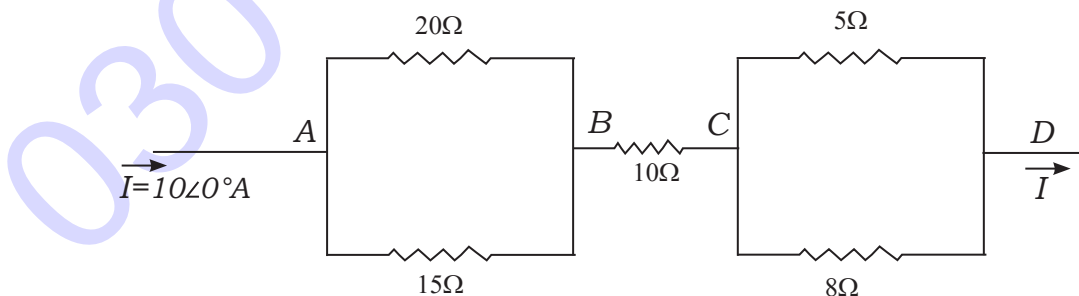
5. Define Thevenin's theorem.
- * 6. Give the transformation formulas from Star to Delta.
7. Define the time constant of an RL circuit.
8. Define the Z-parameters of a two-port network.
9. Define the term characteristic impedance.
10. List the applications of equalizer.

PART—B

10×5=50

- Instructions :**
- (1) Answer *any five* questions.
 - (2) Each question carries **ten** marks.
 - (3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

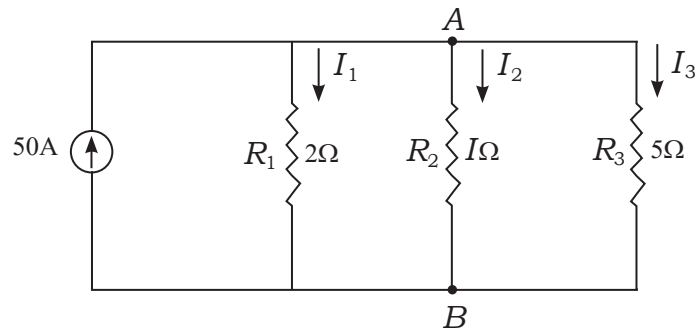
11. (a) In the following circuit find V_{AB} , V_{BC} and V_{CD} :



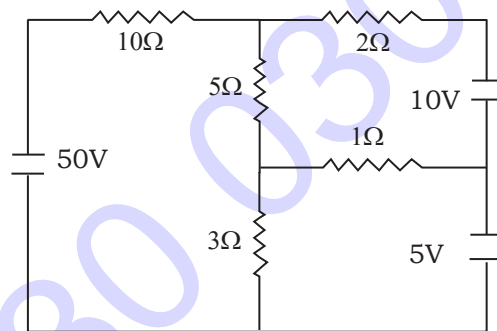
(b) Determine the currents I_1 , I_2 and I_3 using KCL :

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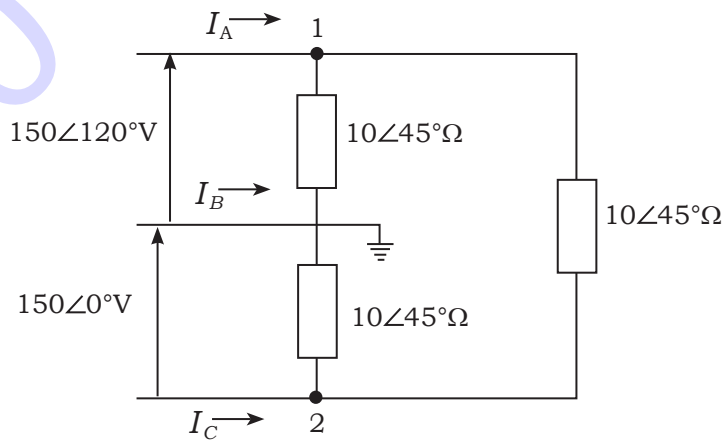
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12. Determine the power absorbed by 5Ω resistor using mesh analysis.



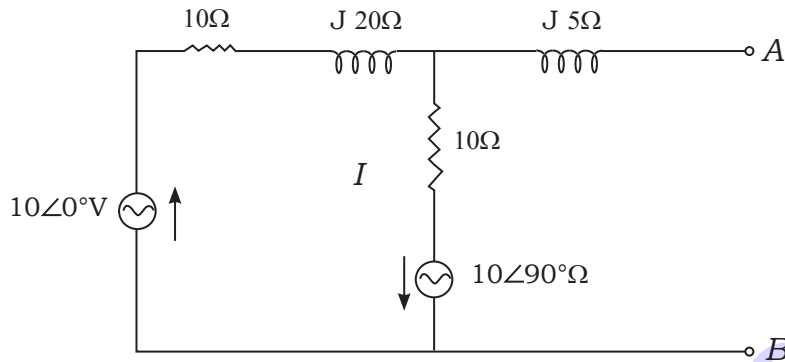
13. Find the currents I_A , I_B , I_C using nodal analysis for the circuit shown below :



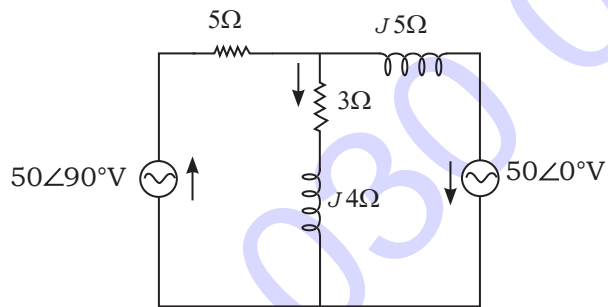
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14. Obtain the Thevenin's equivalent circuit between terminals AB

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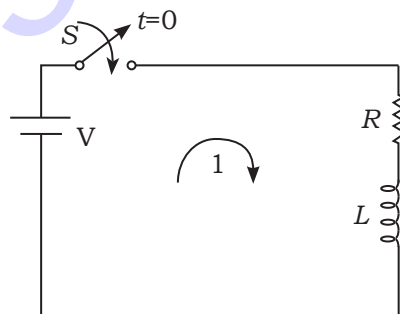


15. Determine the current I through $(3+j4)\Omega$ using superposition theorem.



16. Derive the expressions for Voltages across R and L for $t > 0$

The switch is closed at $t = 0$

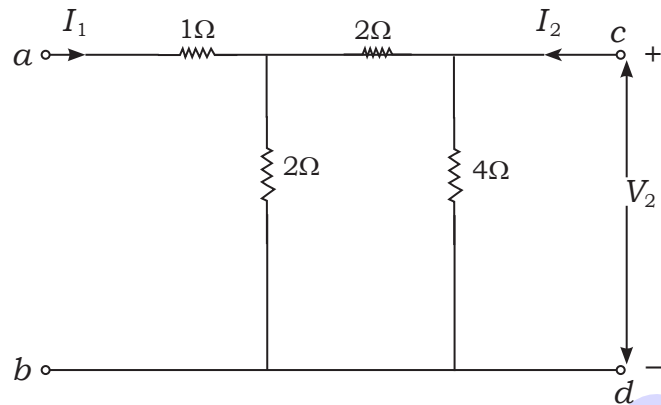


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17. Find the Y parameters for the network shown below:

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18. Derive the expression for characteristic impedance of a symmetrical T-Network.

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