C16-**EC-305**

6236

BOARD DIPLOMA EXAMINATIONS

OCT/NOV-2019

DECE– THIRD SEMESTER

NETWORK ANALYSIS

Time: 3 hours Max. Marks: 80

PART – A **3 X 10 = 30**

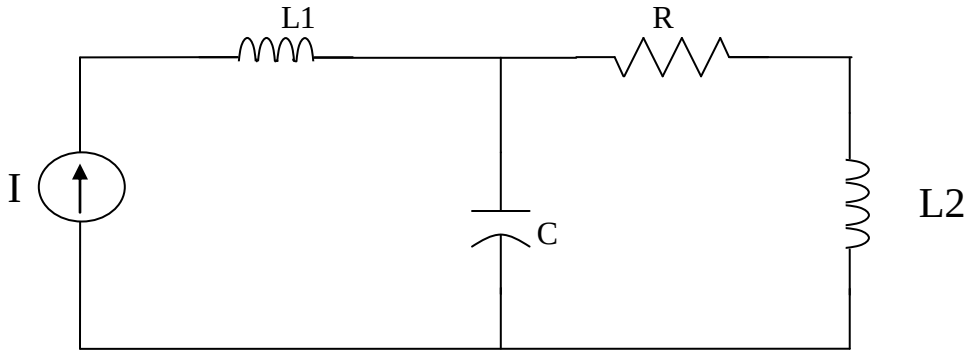
Instructions: *1. Answer **all** questions.*
*2. Each question carries **Three** Marks.*
3. Answer should be brief and straight to the point and should not exceed Five simple sentences.

1. Define passive and active elements.

2. Mention the limitations of Ohm's law.

3. Define the terms Branch, Junction and mesh in circuits.

4. Draw the Dual of the following network.



5. State Superposition theorem.

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6. Give the transformation formulae for Delta to Star transformation.

7. Define the terms Steady state and Transient state.

8. State Inverse Laplace Transform.

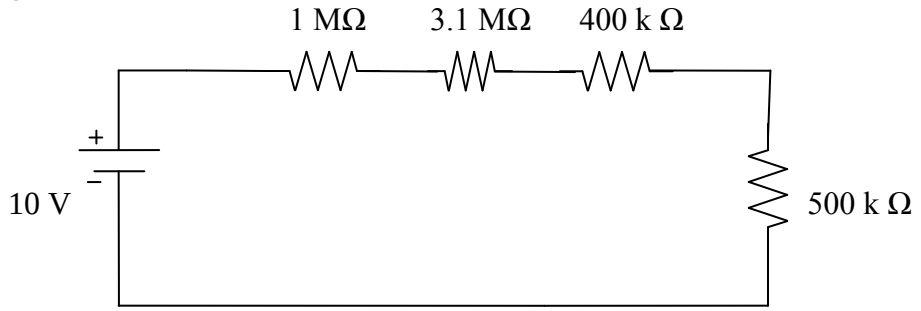
9. Define the terms Neper and Decibel.

10. state the function of attenuator circuit.

PART – B **5 X 10 = 50**

Instructions: *1. Answer any **Five** questions*
*2. Each question carries **TEN** Marks.*
3. Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. a) Find the current in the circuit shown below using KVL. Also determine the voltage across each resistor. **6 M**



b) Define KVL and KCL. **4 M**

12. Determine the mesh currents I_1 and I_2 in the following circuit using mesh current analysis.

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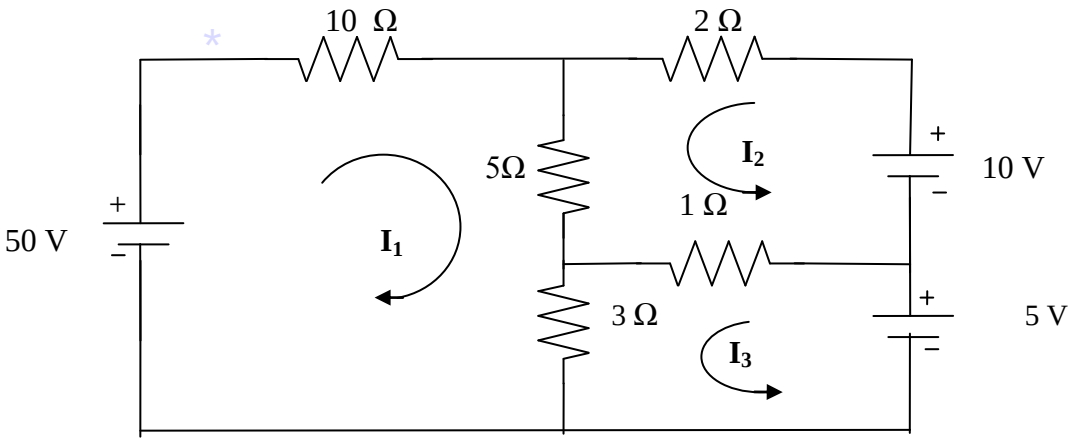
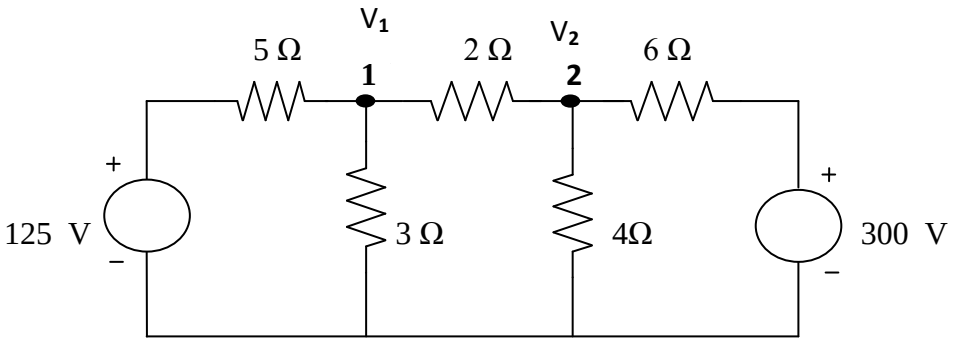
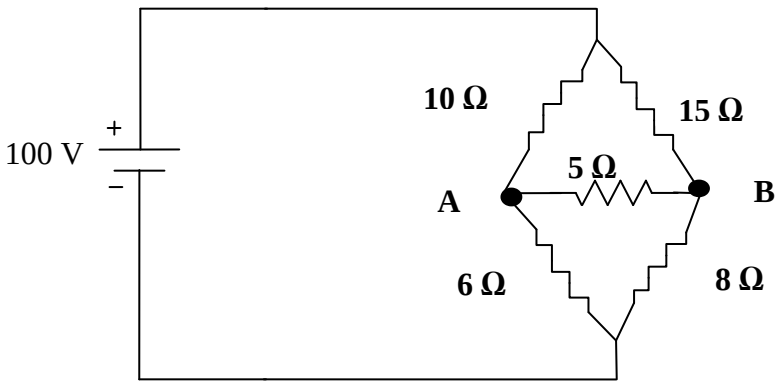


13. In the network shown below, find the voltages of nodes 1 and 2 using node voltage analysis.



14. Find the current following through the 5 ohm resistor of the circuit shown below using Thevenin's theorem.



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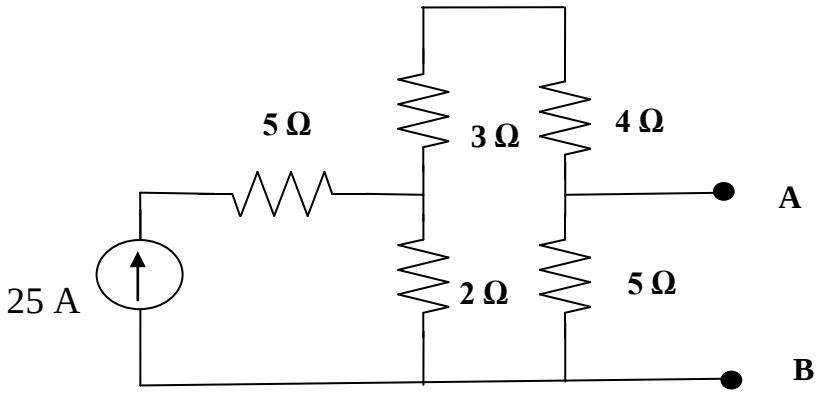
15. Determine the Norton's equivalent circuit between the terminals A and B of the circuit given below.



16. a) Derive an expression for the current in an RC circuit. (Series RC circuit). **6 M**

b) A series RC circuit with R = 5000 ohms and C = 20 μF has a constant voltage source V = 100 v applied at t=0 and the capacitor has no initial charge. Find the equation for the current in the circuit. **4 M**

17. Explain the Initial value theorem and Final value theorem.

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