4457

BOARD DIPLOMA EXAMINATION, (C-14)
MARCH/APRIL—2021
DECE - FOURTH SEMESTER EXAMINATION
NETWORK ANALYSIS

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

PART—A

4×5=20

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

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

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

1. State Ohm's law.

2. State Kirchhoff's current law and voltage law.

3. Define branch and loop in a circuit.

4. Determine the number of node voltage equations in a given network.

5. State Norton's theorem.

6. State maximum power transfer theorem.

7. Define the terms 'initial condition' and 'steady state'.

8. Define port of a network.

9. Define neper and decibel.

10. State low-pass filter and high-pass filter.
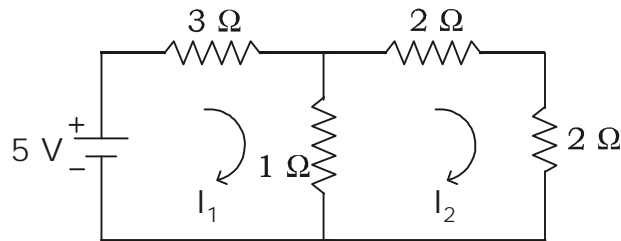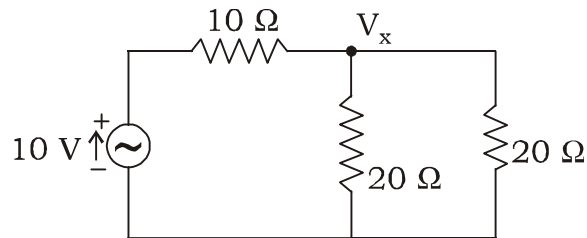
15×4=60

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

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

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

11.   Explain ideal voltage source and ideal current source.

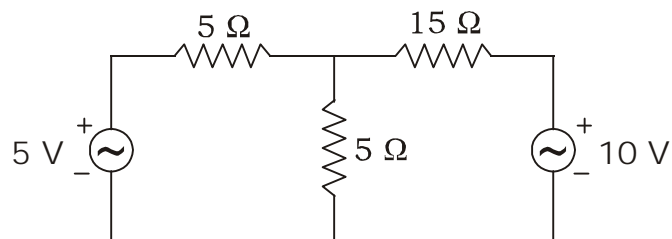12.   Determine the current I_1 and I_2 using mesh analysis :

13.   Determine the voltage V_x using nodal analysis :

14.   List the advantages and limitations of *(i)* Thevenin's theorem, *(ii)* Norton's theorem and *(iii)* maximum power transfer theorem.

15.   Find the current through 15 Ω resistor in the circuit using superposition theorem :

www.manaresults.co.in

16. Explain the DC response for RC circuit.

17. Explain the open-circuit impedance (z) parameters with equivalent circuit.

18. Design a simple low-pass filter (LPF) for a given cut-off frequency and characteristic impedance.

★ ★ ★