Question Paper Code: 43403

B.E. / B.Tech. DEGREE EXAMINATION, AUGUST 2021

Third Semester

Electronicsand Communication Engineering

14UEC303 - CIRCUIT THEORY

(Regulation 2014)

Duration: 1:45 hour   Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

(Answer any ten of the following questions)

1. Define Kirchoff's current law.

2. Give the properties of tree in a graph.

3. List the applications of Thevenin's theorem.

4. State Norton's theorem.

5. List the characteristics of series resonance

6. Obtain the natural frequency and time constant of an RLC series circuit with R = 1kΩ, L=100 H and C=0.1 μF

7. Give the conditions for balanced star connected load.

8. Give the line and phase values in delta connection?

9. What is impedance matching?

10. Define driving point and transfer point impedance.

11. State the limitations of ohm's law.

12. State reciprocity theorem.

13. Give the applications of tuned circuits.

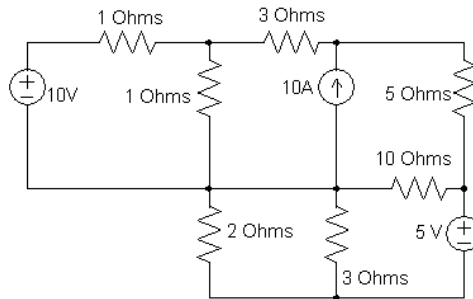14. Define mutual inductance.

15. What is low pass filter?

(Answer any three of the following questions)

11. Find the mesh currents for the following electric circuit shown in Figure (10)
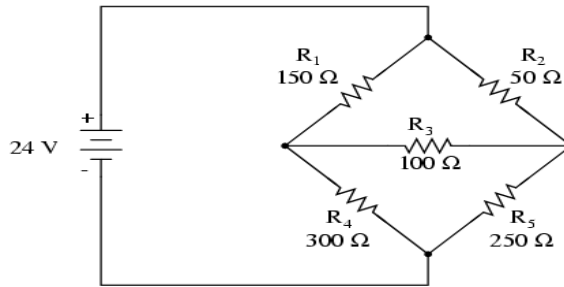
Figure

12. Determine the current in 2 *ohm* resister for the electric circuit shown in Figure using superposition theorem. (10)

13. Obtain the resonant frequency, Q-factor, band width and the voltage across the capacitor at resonance for the series RLC circuit having $R = 7.5\Omega$, $L = 6\mu H$ and $C = 40pF$, with a supply voltage of 0.5 *volts*. (10)

14. For the circuit shown in figure, $L1 = 4\ H$, $L2 = 9H$, $K = 0.5$, $i_1 = 5\ cos(50t\text{-}30°)A$, $i_2 = 2\ cos(50t\text{-}30°)A$. Find
    (i) V_1 (ii) V_2 (ii) total energy stored in the system at $t = 0$. (10)

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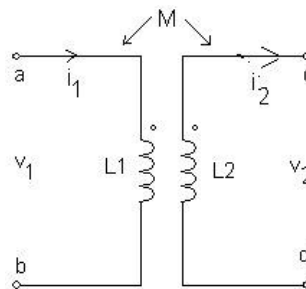
15   Find the *h* parameters for the network shown in figure-6.   (10)

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