Reg. No. : | | | | | | | | | | |

Question Paper Code: 42307

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

Second Semester

Electrical and Electronics Engineering

14UEE207- ELECTRIC CIRCUITS

(Regulation 2014)

Duration: 1.45 hours Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

(Answer any TEN of the following questions)

1. State reciprocity theorem.
2. What is an ideal source?
3. Define nodal analysis.
4. State maximum power transfer theorem.
5. Modify the voltage source of 120 *V* in series resistance of 10 Ω into a current source in parallel resistance.
6. State superposition therom.
7. Define Q-factor of a coil.
8. Sketch the frequency response of a single tuned circuit.
9. Point out the relation between self and mutual inductance.
10. Write the purpose of Laplace transformation in the circuit analysis.
11. Categorize the different types damping conditions occurred in RLC transient circuits.
12. Define line currents.
13. A star connected load has impedance of (6 + j8) Ω in each phase. Determine the line current when it is connected to 400*V*, 3 phase, 50 *Hz* supply.

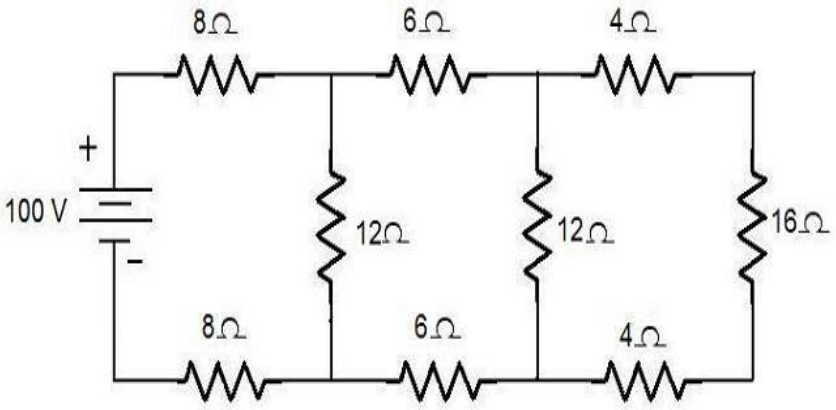
14. In three phase power measurement using two wattmeters, what is the power factor if one wattmeter reads zero?

15. Summarize the relation between line and phase values of voltage and current in a balanced star and delta connected load.

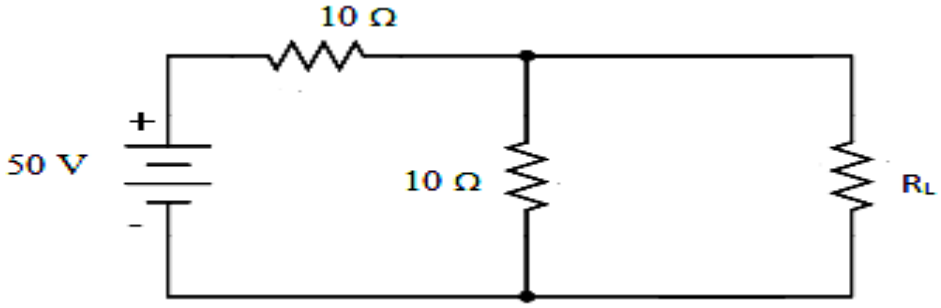
PART – B (3 X 10 = 30 Marks)

(Answer any THREE of the following questions)

16. In the given circuit below calculate (i) the equivalent resistance across the terminals of the supply (ii) total current delivered by the source (iii) power delivered to 16 Ω resistor.



17. Predict the value of load resistance so that maximum power is transferred from battery.



18. State the condition for resonance in series RLC circuit and obtain the expression for resonant frequency. Derive the expression for bandwidth for a series RLC circuit as a function of resonant frequency.

19. Explain the characterization of two port networks in terms of *Z, Y* and *h* parameters.

20. Explain in detail the phasor diagrams of the voltages and currents of a three phase unbalanced circuit.
