

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)
B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025

Second Semester

Electrical and Electronics Engineering

EE3251/ UET24201- Electric Circuit Analysis

Regulations – 2021/2024

Duration : 3 Hrs

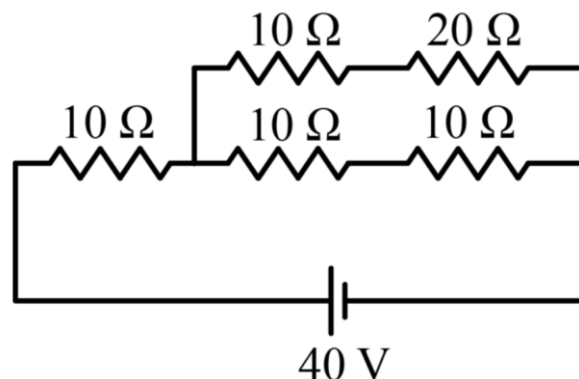
Maximum: 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	Questions	BLT	CO	Marks
1.	State Kirchhoff's current law.	L1	1	2
2.	Define RMS value.	L1	1	2
3.	Recall maximum power transfer theorem.	L1	2	2
4.	Write the expression of an equivalent delta circuit if a star circuit is given.	L1	2	2
5.	Summarize the list of standard test signals.	L1	3	2
6.	What is transient time?	L1	3	2
7.	Define resonance.	L1	4	2
8.	Write about coupled circuits.	L1	4	2
9.	Give the relation between line and phase values in delta connection.	L1	5	2
10.	Write the methods available for measuring power in 3 phase load.	L1	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11. a	Consider the circuit given below.	L3	1	16

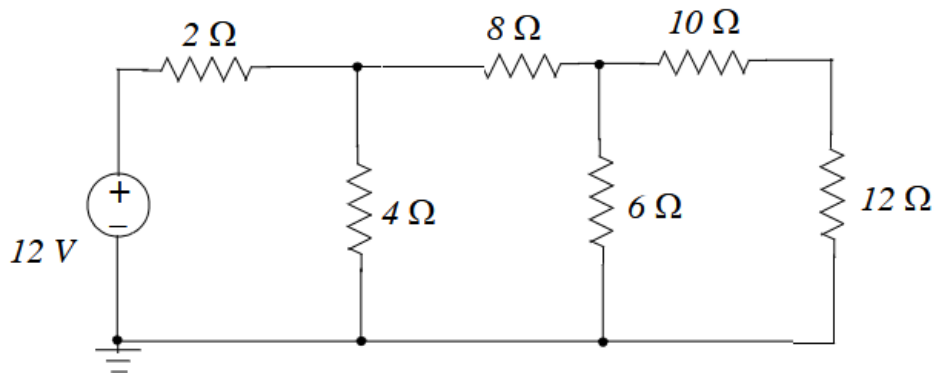


(i) Find the equivalent resistance

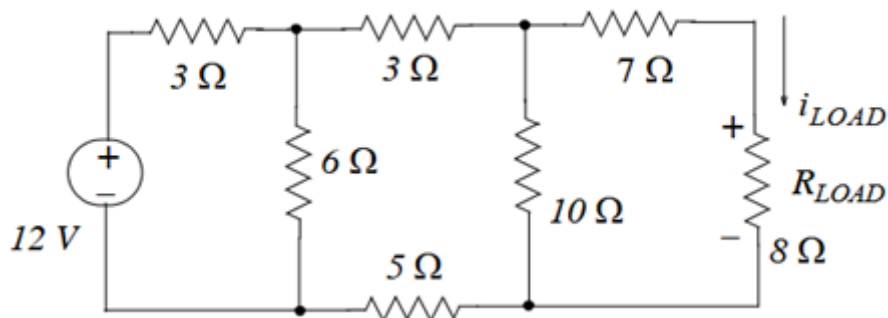
- (ii) Find the source current
- (iii) Find the current through 20-ohm resistor

Or

- b Write mesh equations for the circuit shown and find the current through 2 ohm, 8 ohm and 12 ohm resistor. L3 1 16

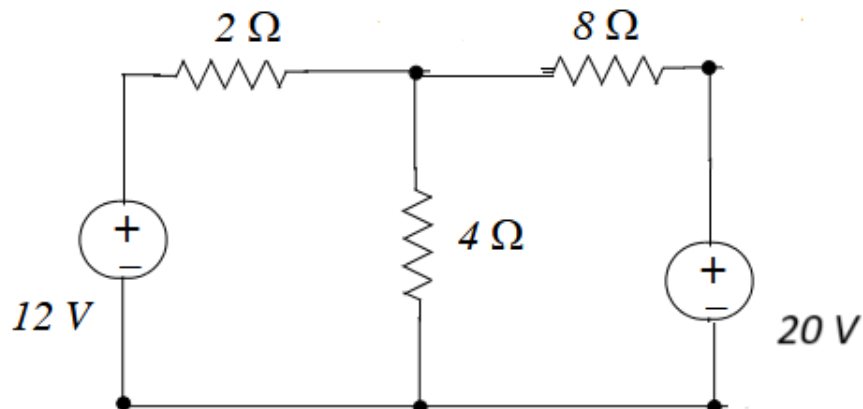


12. a Use Thevenin's theorem and find the load current. L3 2 16

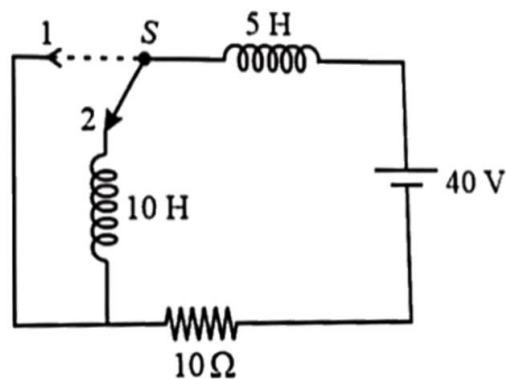


Or

- b Find the current through 4 ohm resistor using superposition theorem. L3 2 16

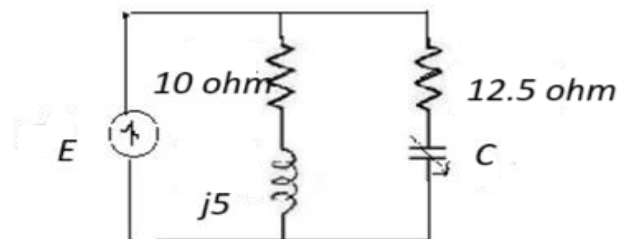


13. a In the circuit shown below, switch S is in position 1 for a long time and brought to position 2 at time $t = 0$. Determine the circuit current. L3 3 16



Or

- b A series RLC circuit has $R = 50 \text{ ohm}$, $L = 0.2 \text{ H}$ and $C = 50 \text{ } \mu\text{F}$. Constant voltage of 100V is impressed upon the circuit at $t = 0$. Find the expression for the transient current assuming initially relaxed conditions. L3 3 16
14. a Determine the value of the capacitance C in order that the circuit in the figure is resonant at 6366 Hz. L3 4 16



Or

- b A coil having an inductance of 100 mH is magnetically coupled to another coil having an inductance of 900 mH. The coefficient of coupling between the coils is 0.45. Calculate the equivalent inductance of the two coils when connected in (i) Series aiding, (ii) Parallel aiding, (iii) Series opposing, and (iv) Parallel opposing. L3 4 16
15. a Three impedances each of $40 - j60 \text{ ohms}$ are connected in star across a 400 V, 3-phase supply. Find the phase current, line current, the power and power factor. L2 5 16

Or

- | | | | | |
|---|--|----|---|----|
| b | Draw the circuit of 3 phase balanced star connected load with wattmeters for power measurement and also prove that two wattmeters are sufficient to measure 3 phase power. | L2 | 5 | 16 |
|---|--|----|---|----|