

Q1. Using the mesh analysis find the I_0 in the circuit give below.



Q2. In the figure below, find the current flowing through R_1 using Thevenin's Theorem.



Q3. What do you understand by source? Discuss the different types of dependent and independent voltages and current sources with suitable sketch.

Q4. A coil having a resistance of 10 ohms and an inductance of 0.2H is connected in series with a 100×10^{-6} F capacitor across a 230V, 50HZ supply,

Calculate:

- i) The active and reactive components of the current
 - ii) The voltage across the coil, Draw the phasor diagram.
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Q5. A balanced star connected load of $8+6j$ ohm is connected across three phase, 50Hz, 440V supply system. Calculate

- i) Line current
 - ii) Power absorbed
 - iii) Reactive volt ampere
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Q6. Open circuit and short circuit test on a single phase transformer gave the following results

$V_0 = 200V$, $I_0 = 0.7A$, $W_0 = 20$ Watt test from primary side, $V_s = 10V$, $I_s = 10A$, $W_s = 40$ Watt test from secondary side.

Determine the equivalent circuit parameters referred to primary side.

Q7. Explain the construction and working principle of three phase induction motor with suitable diagram.

Q8. A three phase, 6 pole, 50 Hz induction motor has a slip of 1% at no load and 3% at full load, Find

i) Synchronous Speed

ii) No Load Speed

iii) Full Load Speed

iv) Frequency of rotor current at full load.

Q9. Draw and explain the V-I characteristics of a PN junction.

Q10. Draw the circuit and explain the characteristics of CB configuration.

Q11. Write a short note on:

- i) RS Flip Flop
 - ii) Star Delta Transformation
 - iii) De Morgan's Theorem
 - iv) Torque-Slip Characteristics
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