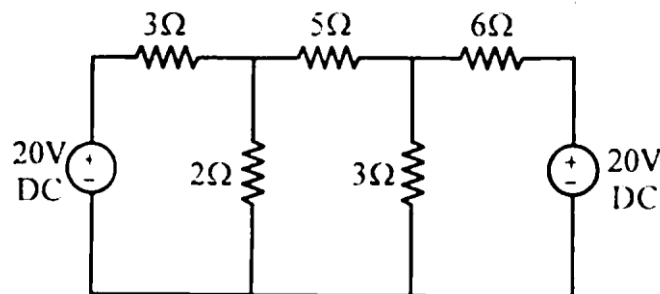


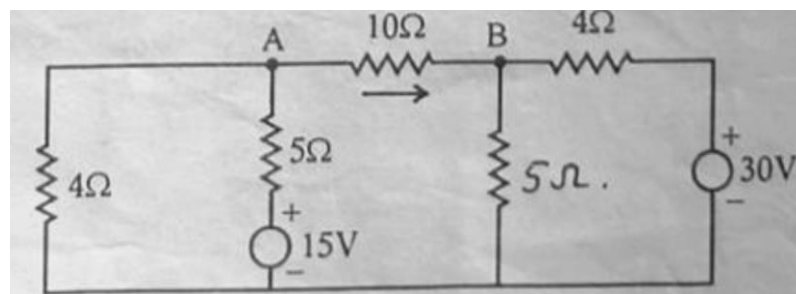
## Important Questions

### UNIT-I

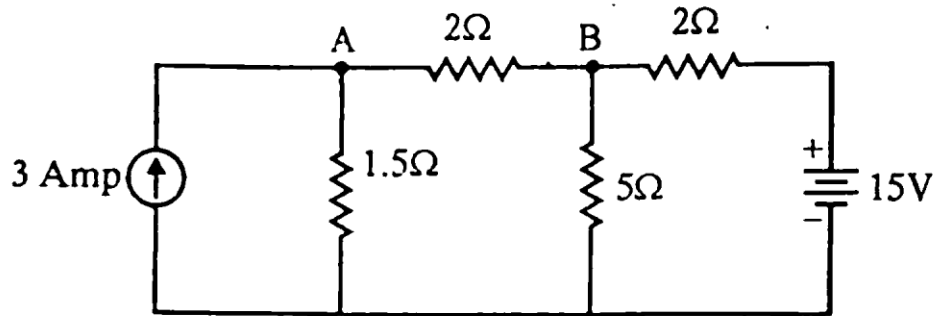
1. Discuss about the Star-Delta Transformation using suitable example.
2. What do you understand by Source? Discuss about different types of Dependent and Independent Sources.
3. State and explain KCL and KVL with suitable example.
4. State and explain Superposition theorem.
5. State and explain Thevenin's theorem.
6. Explain the source transformation technique.
7. Explain Nodal Analysis with suitable example.
8. What do you understand by dependent and Independent sources? Explain with neat sketches. How we can convert a Voltage source into a current source? Discuss.
9. Find the current through 5 ohm resistance using mesh current method



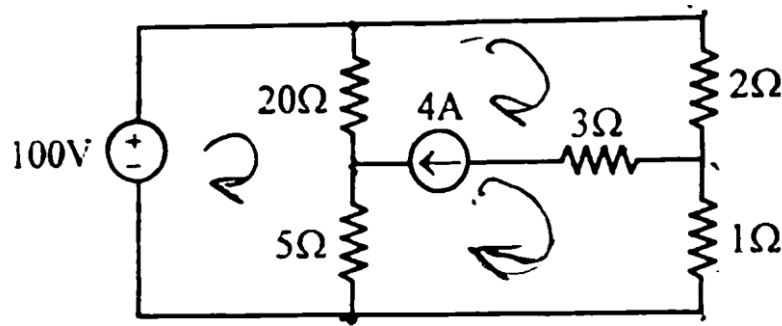
10. Find the current through 10 ohm resistance



11. Find the current through branch AB using superposition theorem



12. Find the current through 5 ohm resistance using mesh analysis



## UNIT-II

1. Define the following terms pertaining to an AC wave
  - i) Time Period
  - ii) RMS Value
  - iii) Average Value
  - iv) Form Factor
  - v) Alternating Quantity
  - vi) Peak Factor
  - vii) Frequency
2. Derive an expression of impedance, current, power factor, power in watts in RLC Series circuit.
3. Draw and explain the RLC series and Parallel circuit.
4. Discuss about the Active(Real), Reactive, Apparent Power and Power factor in AC circuit.
5. Draw Phasor diagram of the following circuits.
  - i) Series RLC      When       $X_L > X_C$
  - ii) Series RLC      When       $X_L < X_C$
  - iii) Series RLC      When       $X_L = X_C$

6. Define 3-phase balance supply with phasor diagram.
7. Draw phasor diagram of a 3-phase delta connected load and find the relation between
8. phase and line voltage and current.
9. Draw phasor diagram of a 3-phase star connected load and find the relation between phase and line voltage and current.
10. Explain the meaning of phase sequence and balance and unbalance supply and loads.
11. Determine the power in balanced and unbalanced three phase system and their measurements.
12. Explain how power can be measured by two wattmeter method.
13. Explain the advantages of 3-phase system.
14. Explain the Role of Resistance, Capacitance and Inductance in an electrical circuit.
15. A coil of resistance 100 and inductance 0.1H is connected in series with 150pF capacitor across a 200V, 50Hz supply calculate:
  - i) Inductive reactance
  - ii) Capacitive reactance
  - iii) Impedance
  - iv) Current
  - v) Power factor
  - vi) Voltage across the coil
  - vii) Voltage across capacitor

### UNIT-III

1. Discuss about magnetization characteristics of ferromagnetic material.
2. Discuss the law of electromagnetic induction(Faraday's Law).
3. Explain about Open circuit test and short circuit test.
4. State the different types of transformer. Describe the construction (core type and shell type) and working principle of single phase transformer.
5. What do you understand by self and Mutual inductance? Derive the relation between Self and Mutual inductance
6. Enumerate the various losses in a transformer. How these losses can be minimized.
7. Derive an expression for an energy density in magnetic circuit.
8. What are the necessary test to determine the efficiency and voltage regulation of transformer?
9. Write short notes on voltage regulation and efficiency of transformer.
10. Derive the expression for EMF equation of transformer. What is transformation ratio?
11. Draw the equivalent circuit of transformer.
12. Distinguish(Compare) between electrical and magnetic circuit.
13. Derive a relation that gives the value of force on a current carrying conductor.
14. In a 25 kVA, 2000/200 power transformer the iron and copper losses are 350W and 400W respectively. Calculate the efficiency at full load.
15. Open circuit and short circuit test on a single phase transformer gave the following results.

$V_o = 200V, I_g = 0.7A, W_o = 20$  Watt test from primary side

$V_s = 10V, I_s = 10A, W_s = 40$  Watt test from secondary side.

Determine the equivalent circuit parameter referred to primary side.

### UNIT-IV

1. Draw and explain complete Torque- Slip characteristics of 3-phase induction motor.
2. Discuss the construction and working principle of the three phase induction motor.

Draw the torque slip characteristic of the above. Why this motor cannot operate on synchronous speed?

3. Discuss about types of losses occurring in electrical machine.
4. Explain in Detail Applications of DC machines.
5. What the difference is between separately excited and a self excited DC generator.
6. Explain the torque-speed characteristics and speed control of separately excited DC motor.
7. Explain the principle of synchronous motor.
8. Describe the main parts (Construction) of DC machines and discuss the working principle of dc machine.

Or

Describe D. C. machine with suitable sketches in viewing of main parts and construction details.

9. Develop an EMF equation for D.C. generator.
10. Compare induction and synchronous machine.

**UNIT-V**

1. Write short notes on Logic Gates.
2. What do you understand by adder circuit? Draw and explain the Half and full adder circuit.
3. Write short notes on J-K flip-flop.
4. Write short notes on R-S flip-flop.
5. Write short notes on De-Morgan's Theorem.
6. Draw and explain the V-I characteristics of a PN junction diode.
7. Explain the working of a diode and draw its V-I characteristics.
8. What do you understand by semiconductor? Explain the different types of semiconductors in details.
9. Explain principle of operation and characteristics of bipolar junction transistor (BJT).
10. Draw the circuit and explain the characteristics of common base (CB), common emitter (CE) configuration.
11. Explain how a transistor acts as a switch?
12. Explain region of operation of transistor or bipolar junction transistor (BJT)



If you have any queries please visit- <https://studywithakash.in/>

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**THANK YOU**