Question paper

Paper-I

Q-1 A) Select correct alternative and rewrite the sentence. (4)

1) To get Thevenin voltage ,you have to -------

i) Short the load resistor ii) open the load resistor

iii) Short the voltage source iv) open the voltage source

2) An ideal current source is one whose internal resistance is -----

i) Very High ii) Infinite iii)zero iv) Low

3)In ----- meter an internal battery must be used.

i) Ohm meter ii) Voltmeter iii) Ammeter iv) Cali meter

4)In purely ----- circuit, the current leads the voltage by 90˚.

i) Resistive ii) Capacitive iii) Inductive iv)Active

Q-1) B) Answer any two of the following questions. (6)

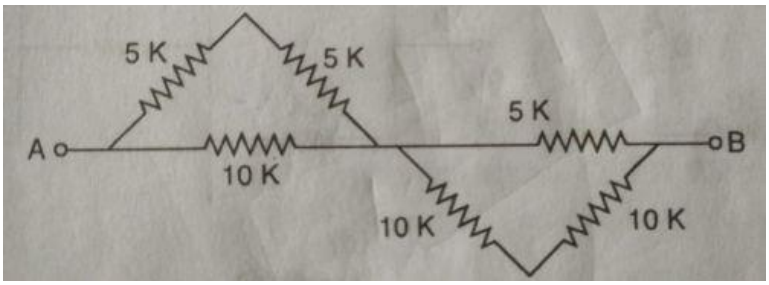
1) State Thevenin's theorem .Which steps should be followed while using this theorem?

2) Define for AC :i) Peak Value ii)Average value iii) RMS value

3) Explain construction Ammeter using PMMC mechanism with diagram.

Q-2) A) Answer any two of the following questions. (6)

1) Find the total resistance across AB.

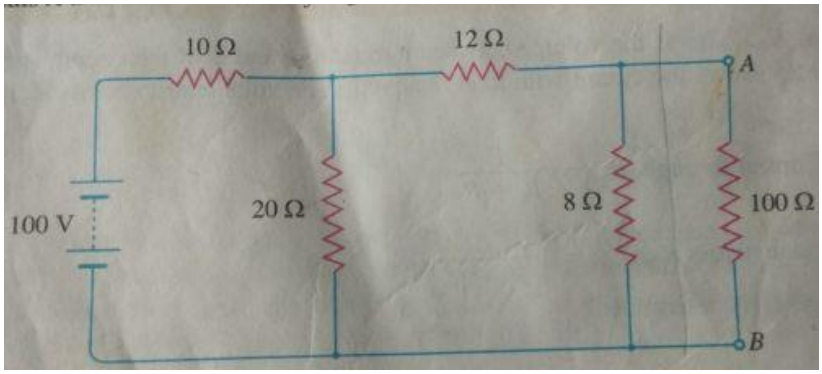


2) Compare AC voltage and DC voltage.

3) Write a note on multimeter.

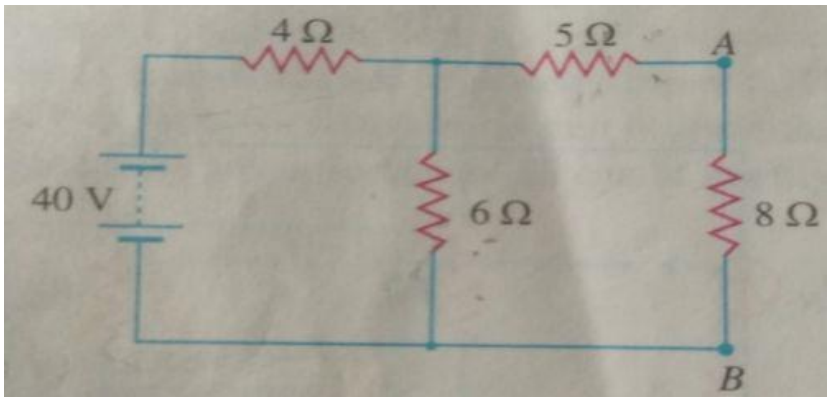
Q.2) B) Answer any one of the following question. (4)

1) Using Thevenin's theorem, find the current through 100Ω resistance Connected across terminals A and B in following circuit.



2) Using Norton's theorem, find the current through 8Ω resistor in network

shown in fig. below



Q-3) A) Answer any two of the following questions. (6)

1) State superposition theorem for which type of components this theorem can be applied?
2) Explain the terms; importance, inductive reactance and Capacitive reactance.
3) Explain the conversion of galvanometer into DC voltmeter.

Q-3) B) Answer any one of the following. (4)

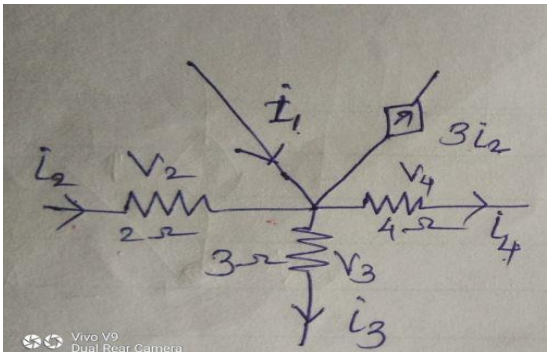
1) Find the voltmeter reading and error in measurement of Voltage in the following circuit. Voltmeter has sensitivity of 2kΩ/V is used at a range of 0 – 50 volts.
2) The resonant frequency of LC circuities 1KHz. Calculate the value of inductance, if the capacitance is 50μF.

Q-4) A) Answer any two of the following questions. (6)

1) State Kirchhoff's law with suitable examples.
2) Explain the importance of time factor in frequency and phase.
3) What are the precautions that must be observed by using ammeter.

Q-4) B) Answer any one of the following. (4)

1) A PMMC meter carries maximum current 15 mA when a Potential difference of 75 V is applied across it . How will you convert it into voltmeter for measuring 150Volts?
2) Calculate currents. i_2 , i_3 , i_4.
Given i_1 = 4A, V_3 =3V

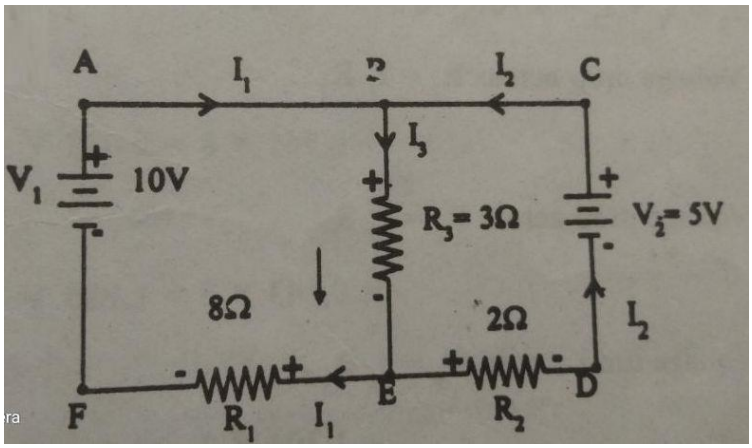


Q-5) A) Answer any two of the following. (6)

1) State KCL and explain its sign conventions
2) Explain the generation of alternating voltage using rotary generator.
3) What are the precautions observed while using voltmeter.

Q-5) B) Answer any one of the following. (4)

1) A galvanometer has a sensitivity of 20 kΩ/V. find the resistance required to use it as a voltmeter of range 100 V. the resistance of galvanometer is 200Ω.
2) Using Kirchhoff's laws , calculate current through each resistor and voltage drop across each resistor for the circuit shown below.



OR

Q-5) A) Answer any two of the following. (6)

1) State and explain Maximum power transfer theorem.
2) State and explain any two types of AC sources.
3) Define voltmeter sensitivity. Write equation using sensitivity for the multiplier resistor.

Q-5) B) Answer any one of the following. (4)

1) Design a multirange voltmeter using galvanometer of full scale deflection of 500μA and resistance 100Ω with ranges of 10V and 50V.draw circuit diagram.
2) Pic – to – pic voltage of sinewave is 350V.calculate the average value and rms value of the voltage.