SRM INSTITUTE OF SCIENCE AND TECHNOLOGY - RAMAPURAM
DEPARTMENT OF ECE
ELECTRICAL AND ELECTRONICS ENGINEERING
MULTIPLE CHOICE QUESTION - QUESTION BANK

UNIT 1 - ELECTRICAL CIRCUITS

EASY QUESTIONS

1) Thevenin resistance is found by _____
A. Shorting all voltage sources
B. Opening all current sources
C. Shorting all voltage sources and opening all current sources
D. Opening all voltage sources and shorting all current sources
ANSWER: C

2) In a star connected system, the current flowing through the line is
A. Greater than the phase current
B. Equal to the phase current
C. Lesser than the phase current
D. zero

ANSWER: B

3) The 2ohm and 3 ohm resistor are in series the equivalent resistance is
A. 1.2
B. 5
C. 4.2
D. 1.4
ANSWER: B

4) The internal resistance for the maximum transfer of power should be
A. equal to load resistance
B. greater than load resistance
C. zero
D. lesser than load resistance
ANSWER: A

5) If the voltage frequency applied to a series RC circuit is increased, then the phase angle will
A. Increases
B. reduces
C. remains the same
D. zero
ANSWER:A

6) In an RLC circuit above the resonant frequency, the current will
A. lags the applied voltage
B. leads the applied voltage
C. is in phase with the applied voltages
D. is zero
ANSWER: A

7) The equation for ohms law is
A. V=IR,at contant temperature
B. V=IC
C. V=IL
D. V=I/R
ANSWER: A

8) A 6 kHz sinusoidal voltage is applied to a series RC circuit. The frequency of the voltage across the resistor is
A. 6Khz
B. 12Khz
C. 13Khz
D. 14Khz
ANSWER: A

9) In a certain load, the actual power is 150 W and the reactive power is 125 VAR. What is the apparent power?
A. 19.52W
B. 195.2W
C. 375W
D. 24W
ANSWER: B

10) What is the unit of power?
A. Watt
B. Newton
C. Joule
D. Henry
ANSWER: A

11) Mesh analysis employs the method of
A. KVL
B. KCL
C. Both KVL and KCL
D. Neither KVL or KCL

ANSWER: A

12) If there are 10 nodes in a circuit, how many equations do we get?
A. 10
B. 9
C. 8
D. 7
ANSWER: B

13) Superposition theorem can only be used for circuits
A. Element resistive
B. Element passive
C. Linear bilateral elements
D. Non-linear elements
ANSWER: C

14) Each phase of a three phase alternator delta connected produces a voltage of 11KV and a current of 1000A at pf 0.9.Find line voltage and line current.
A. 11KV,1732A
B. 11KV,1632A
C. 3.33KV,1732A
D. 3.33V,1000A
ANSWER: A

15) In a balanced three phase system three voltages differ in ____ electrical from each other in a sequence and have equal magnitude.
A. 240
B. 120
C. 360
D. 0
ANSWER: A

16) For series circuit the equivalent resistance is ___ the greatest resistance connected in series circuit.
A. lesser than
B. greater than
C. equal to
D. not equal to
ANSWER: A

17) The non-linear circuit parameters are ?
A. Inductance
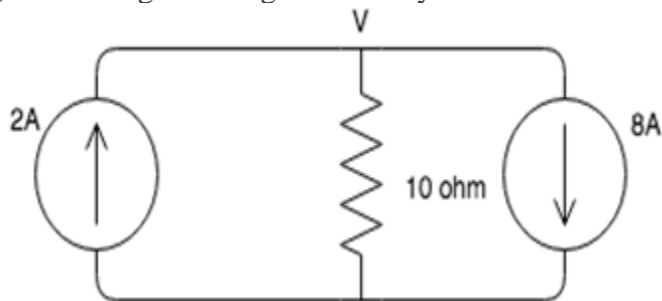B. Capacitance
C. Resistance
D. Transistor
ANSWER: A

18) In a series *RC* circuit, find the RMS voltage where the voltage across resistor is 12 $V_{(rms)}$ and voltage across capacitor is 15 $V_{(rms)}$. The rms source voltage is
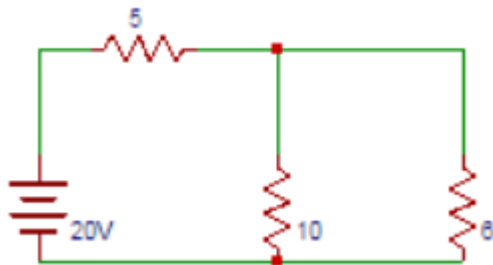
A. 3
B. 27
C. 19.2
D. 40
ANSWER: C

MODERATE QUESTIONS

1) The voltage V using nodal analysis
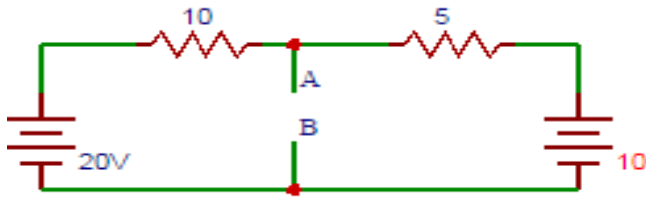

A. -60V
B. 60V
C. -40V
D. 40V
ANSWER: A

2) Find the current flowing between terminals A and B of the circuit shown below.
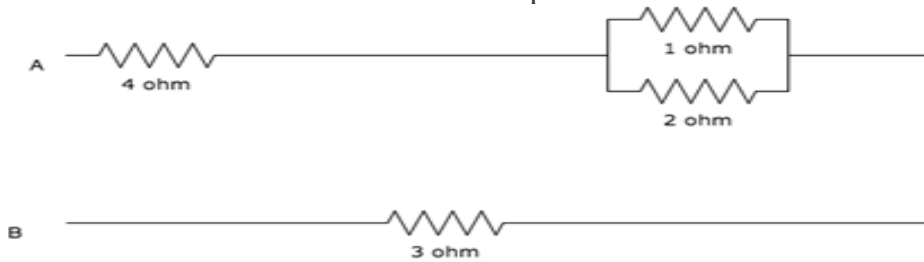

A. 1
B. 2
C. 3
D. 4
ANSWER: D

3) Find the current flowing between terminals A and B.

A. 1
B. 2
C. 3
D. 4
ANSWER: D
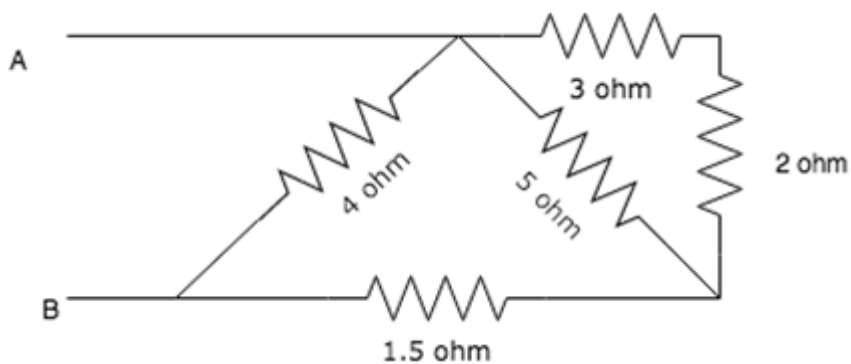
4) Calculate the total resistance between the points A and B.
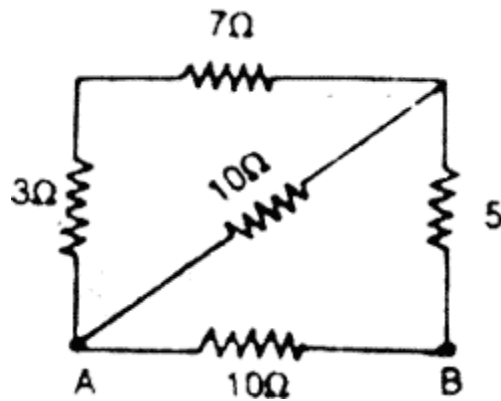

A. 7 ohm
B. 4 ohm
C. 7.6 ohm
D. 0.48 ohm
ANSWER: C

5) Calculate the equivalent resistance between A and B.

A. 2
B. 4
C. 6
D. 8

ANSWER: B

6) The resistance are connected in series. Find the equivalent resistance

A. 35
B. 25
C. 15
D. 5
ANSWER: D

7) An electric kettle has a resistance of 30ohm.What current will flow when it is connected to 240Vsupply.Also find the power.
A. 8A,1.92Kw
B. 9A,3Kw
C. 10A,4Kw
D. 12A,5Kw
ANSWER: A

8) An ideal voltage source has
A. Zero internal resistance
B. Open circuit voltage equal to the voltage on full load
C. Terminal voltage in proportion to current
D. Terminal voltage in proportion to load
ANSWER: A

9) To find impedance in thevenins theorem.
A. All independent current sources are short circuited and independent voltage sources are open circuited
B. All independent voltage sources are open circuited and all independent current sources are short circuited
C.All independent voltage and current sources are short circuited
D. All independent voltage sources are short circuited and all independent current sources are open circuited
ANSWER: A

10) Application of Norton's theorem to a circuit yields

A. Equivalent current source and impedance in series
B. Equivalent current source and impedance in parallel
C.Equivalent impedance
D. Equivalent current source
ANSWER: A

11) What will be the resistance of the wire which has 0.14 mm diameter and specific resistance 9.6 micro ohm-cm is 440 cm long. The resistance of the wire will be
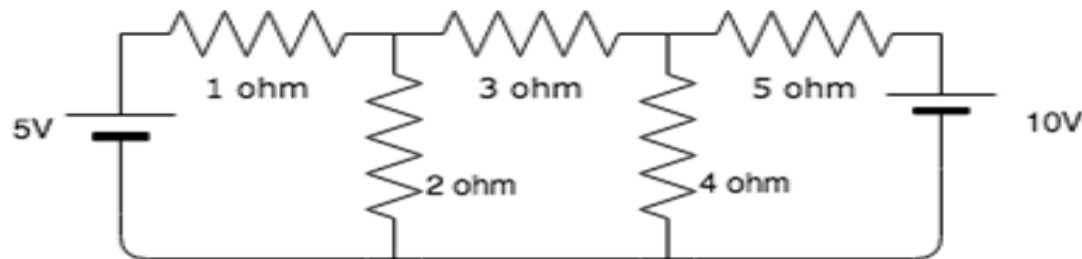A.9.6 ohm
B. 11.3 ohm
C. 13.7 ohm
D. 27.4 ohm
ANSWER: D

12) In Superposition theorem, while considering a source, all other voltage sources are?
A. open circuited
B. short circuited
C. change its position
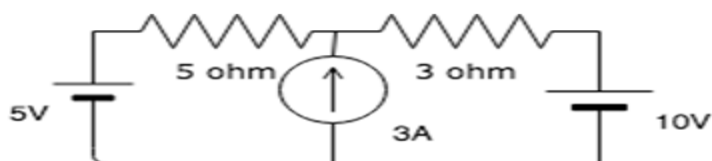D. removed from the circuit
ANSWER: B

TOUGH QUESTIONS

1) Find the value of the currents I1, I2 and I3 flowing clockwise in the first, second and third mesh respectively.

A. 1.54A, -0.189A, -1.195A
B. 2.34A, -3.53A, -2.23A
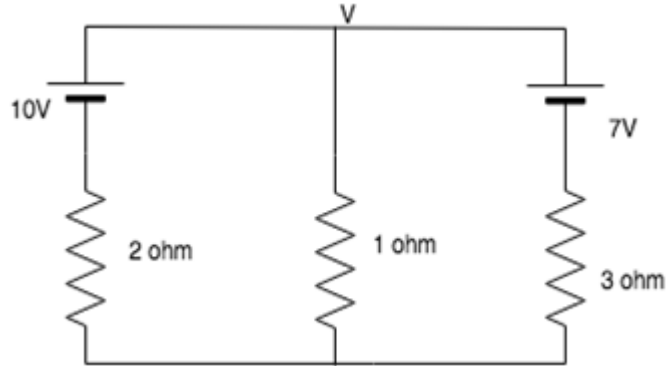C. 4.33A, 0.55A, 6.02A
D. -1.18A, -1.17A, -1.16A
ANSWER: A

2) Calculate the mesh currents I1 and I2 flowing in the first and second meshes respectively

A. 1.75A, 1.25A
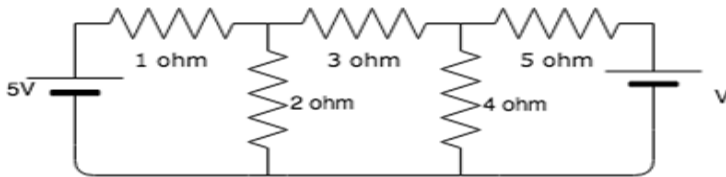B. 0.5A, 2.5A
C. 2.3A, 0.3A
D. 3.2A, 6.5A
ANSWER: A

3) Find the node voltage V.

A. 1V
B. 2V
C. 3V
D. 4V
ANSWER: D
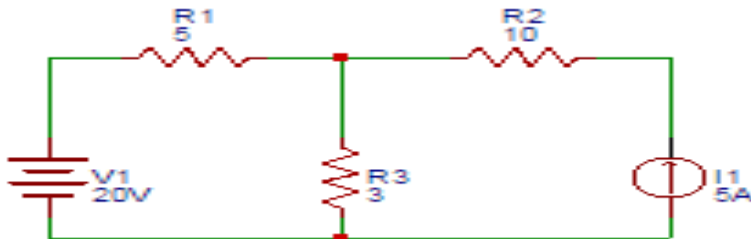
4) Find the value of V if the current in the 3 ohm resistor=0.

A. 3.5V
B. 6.5V
C. 7.5V
D. 8.5V
ANSWER: B

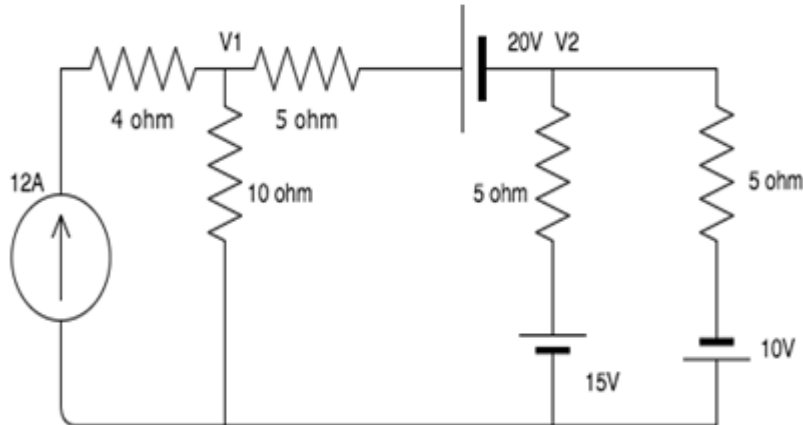5) In the circuit shown, find the current through 4Ω resistor using Superposition theorem.

A. 4

B. 5
C. 6
D. 7
ANSWER: B

6) Find the value of V1 and V2.

A. 87.23V, 29.23V
B. 23.32V, 46.45V
C. 64.28V, 16.42V
D. 56.32V, 78, 87V
ANSWER: C

A circuit consists of three identical resistors connected in series. When one resistor is removed the circuit current will
A. Decrease
B. Increase by one third
C. Decrease by one third
D. Remains the same
ANSWER: D

For validating maximum power transfer in a circuit, $R_{internal}$ of the source must be
A. Same as the load resistance
B. Zero
C. More than load resistance
D. Less than load resistance
ANSWER: A

Law proposed by Ohm is relevant in Conditions with
A. Temperature constant
B. Constant Pressure remains constant
C. Constant Volume

D. Constant pressure and temperature
ANSWER: A

In a circuit with pure inductive (L), the current _____ by a voltage of 90 degree.
A. leads
B. lags
C. in phase
D. greater than and equal
ANSWER: B

The form factor in an electric circuit is the ratio of
A. average value to r.m.s.value
B. r.m.s. value to average value
C. peak value to r.m.s. value
D. Peak factor to r.m.s value
ANSWER: B

The junction point where two (or) more than two network elements meet in a circuit is

_____
A. Node
B. Branch
C. Loop
D. Mesh
ANSWER: A

50 Hz means
A. one cycle/sec
B. two Cycles/sec
C. 50 Cycles/sec
D. 100 Cycles/sec
ANSWER: C

According to superposition theorem, while considering an individual source, all other voltage sources can be substituted by
A. Current sources
B. Short circuit
C. Open circuit
D. External resistor
ANSWER: B

Norton current is determined as
A. Open circuit current
B. Short circuit current
C. Neither open circuit nor short circuit current
D. Open circuit and short circuit current
ANSWER: B

For a purely resistive circuit, the power factor is
A. 1
B. 0.5
C. Zero
D. 0.866
ANSWER: A
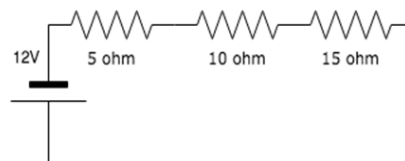

Voltage of a coil when it has $\frac{di}{dt}$= 20 mA/s and L=8 H is
A. 16 mV
B. 1.6 mV
C. 160 mV
D. 0.16 MV
ANSWER: A

Find the voltage present in the 10 ohm of the circuit shown.

A. 12 V
B. 4 V
C. 10 V
D. 0 V
ANSWER: B

For calculating impedance in Thevenins Theorem
A. Short circuit the voltage sources and open circuit the current sources
B. Short circuit the current sources and open circuit the voltage sources
C. Short circuit the voltage sources and current sources
D. Open circuit the voltage sources and current sources
ANSWER: A

Determine the Average value of voltage v(t)= 300 sin wt

A. 85.5 V
B.191.08 V
C.90 V
D.125.08 V
ANSWER: B

For a three phase star connected system with a line voltage of 400 V, calculate the value of phase voltage.

A. 210. 54 V
B. 275.28 V
C. 331.33 V
D. 230.94 V
ANSWER: D
If the value of the resistors are doubled in a circuit which consists of an ideal voltage source and linear resistors, the voltage appeared across each resistor is
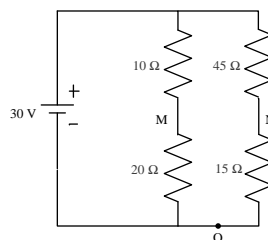A. Not changed
B. Doubled
C. Halved
D. Increased by three times
ANSWER: A

By applying Kirchhoff's voltage law (KVL), determine the voltages V_a and V_b in the given circuit
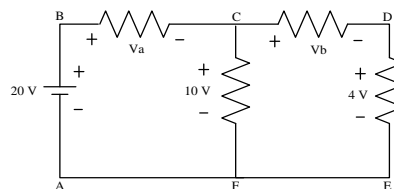
A. 2 V, 4 V
B. 6 V, 5 V
C. 10V, 6 V
D. 9 V, 12 V
ANSWER: C
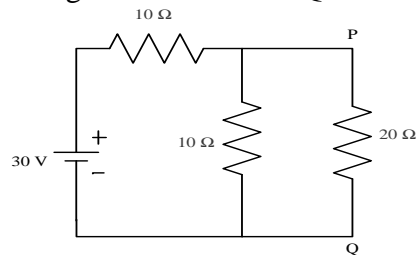

Find out the voltage V_{MN}

A. 10.5 V
B. 8.5V
C. 16.5 V
D. 12.5 V
ANSWER: D

Calculate Thevenins equivalent voltage between P and Q for the circuit shown below

A. 20 V
B. 25 V
C. 10 V
D. 15 V
ANSWER: D
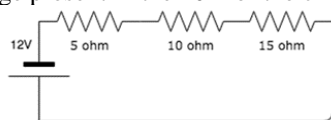

A circuit containing resistor and a capacitor in series connection has an impedance of 25 Ω and the resistance of 10 Ω. Obtain the power factor.

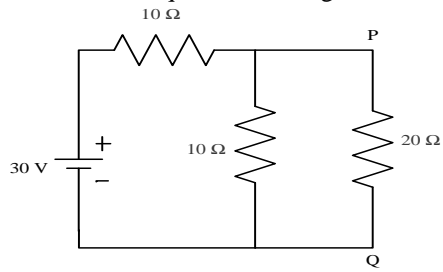A. 0.4 leading
B. 0.4 lagging
C. 0.866 leading
D. 0.866 lagging
ANSWER: A

Find the voltage present in the 10Ω of the circuit shown.

A. 12 V
B. 4 V
C. 10 V
D. 0 V

Calculate Thevenins equivalent voltage between P and Q for the circuit shown below.

A. 20 V
B. 25 V
C. 10

D. 15 V