1. In a parallel circuit the supply current is equal to the:

    (a) total power multiplied by the supply voltage
    (b) sum of the branch currents
    (c) supply voltage divided by the resistance of any one branch
    (d) ratio of the branch currents

2. Connecting resistors in parallel produces the same general effect as:

    (a) increasing the temperature of a metallic conductor
    (b) increasing the cross-sectional area of a conductor
    (c) increasing the length of a conductor
    (d) decreasing the conductance of a conductor.

3. When three 10Ω resistors are connected in parallel to each other, the voltage drop across each is:

    (a) one third of the supply voltage
    (b) supply voltage divided by 10
    (c) equal to the supply voltage
    (d) supply voltage divided by 30.

---

4. The lowest value of resistance in any parallel combination of resistors is always:

    (a) equal to the equivalent resistance of the combination.
    (b) less than the equivalent resistance of the combination.
    (c) dependent on voltage and current for its resistance.
    (d) greater than the equivalent resistance of the combination.

5. Twenty five resistors each with a resistance of 100 Ω are connected in parallel with each other. The equivalent resistance of the combination is:

    (a) 100 Ω
    (b) 2500 Ω
    (c) 4 Ω
    (d) 25 Ω

6. A parallel circuit is defined as a circuit with:

    (a) more than one resistor
    (b) more than one current path
    (c) only one current path
    (d) more than one supply voltage

7. If an extra parallel connected resistor is added to a circuit, the equivalent resistance of the circuit will:

    (a) increase
    (b) remain unchanged
    (c) decrease
    (d) cause the applied voltage to increase.

8. The voltage in a parallel circuit:

    (a) is the same in all parts of the circuit
    (b) decreases through the circuit from resistor to resistor
    (c) greater than the supply voltage
    (d) increases with increase resistance.

1. The voltages in the parallel section of a series-parallel circuit:

    (a) are affected by the circuit equivalent resistance
    (b) are difficult to determine
    (c) are the same across the parallel components
    (d) decrease through the circuit from component to component

2. If one resistor in the parallel section of a series-parallel circuit goes open circuit, the circuit power dissipation will:

    (a) remain constant.
    (b) decrease.
    (c) increase.
    (d) decrease to zero.

3. The power dissipation of any circuit:

    (a) equal to the sum of the power dissipation of each resistor.
    (b) equal to the product of the power dissipation of each resistor.
    (c) equal to the supply voltage squared times the circuit equivalent resistance.
    (d) depends on the circuit arrangement.

4. In the circuit of figure 12, the supply current is equal to the:

(a) value of branch currents.

(b) product of the branch currents.

(c) sum of the currents in each resistor.

(d) sum of the branch currents.

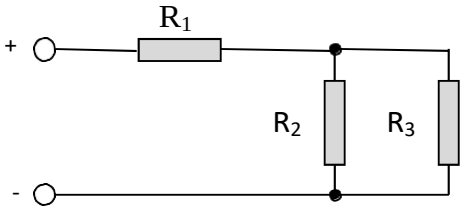

figure 12.

5. For the circuit of figure 14, determine the -

(a) equivalent circuit resistance (209.19Ω)
(b) circuit current (0.478A)
(c) voltage drop across resistor $R_1$ (57.36V)
(d) voltage drop across $R_2$ and $R_3$ (42.63V)
(e) currents in resistors R2 and R3 (0.284A, 0.193A)
(f) total power dissipated (47.8W)

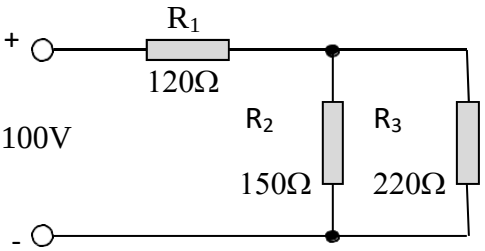

figure 14

6. For the circuit of figure 15, determine the –

(a) equivalent resistance (8.94Ω)
(b) current in each branch (19.17A, 6.57A)
(c) supply current (25.72A)

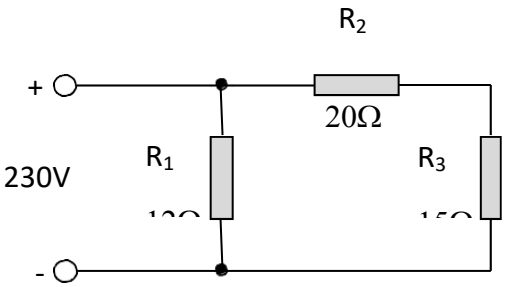

figure 15.

(d) power dissipated by each component (4408W, 863.3W, 647.47W)

(e) total power dissipation (5915.6W)

1. The resistance of a conductor is said to be:
   (a) proportional to its length.
   (b) inversely proportional to its length.
   (c) proportional to its cross-sectional area.
   (d) inversely proportional to its resistivity.

2. If all other factors remain constant while the length of a conductor is halved, the resistance of the conductor is:
   (a) doubled.
   (b) squared
   (c) halved
   (d) quartered

2. The voltmeter sensitivity or the resistance of a voltmeter is given in terms of:

   (a) volts per ohm

   (b) ohms per volt

   (c) volts per ampere

   (d) ampere per volt.

3. An AVO-7 multimeter has a sensitivity of 500 ohms/volt. Determine the resistance of the meter when used on the:

   (a) 25 V range

   (b) 1000 V range.

4. Referring to figure 18. Determine the:

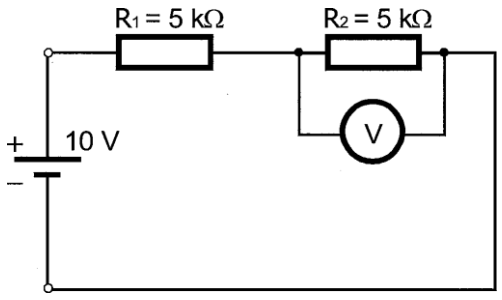


figure 18

   (a) voltage across $R_2$

(b) voltage across $R_2$ if the voltmeter has a resistance of 20 MΩ

5. Question 15 refers to figure 19, determine:

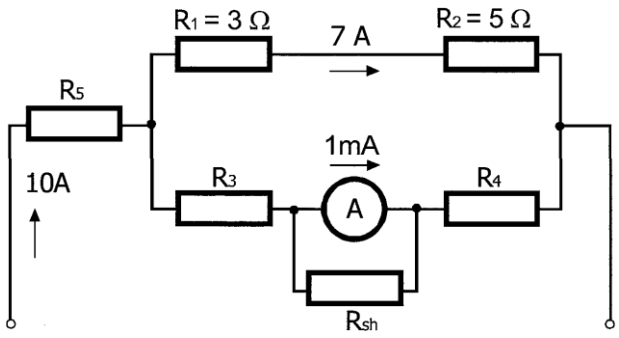


figure 19

(a) the value of the current through Rsh.

(b) the voltage drop across $R_2$

(c) the power rating of $R_1$

(a) .

2. Which of the following cannot be used as a dielectric:
   (a) air
   (b) paper
   (c) carbon
   (d) polyester
3. Decreasing the plate area of a capacitor:
   (a) increases its capacitance
   (b) does not effect its capacitance
   (c) decreases its capacitance
   (d) increases its dielectric strength
4. The practical unit of capacitance is the:
   (a) micro-coulomb
   (b) milli-farad
   (c) micro-farad
   (d) farad.
5. An R-C circuit consists of a resistance of 120kΩ and a capacitance of 36μF.Determine the -
   (a) time constant of the circuit (4.32 seconds)
   (b) time taken for the capacitor to fully charge. (21.6 seconds)
6. An R-C circuit has an applied voltage of 24V. What is the voltage across the capacitorafter one time constant. (15.17V)

1. Two, 2μF capacitors connected in parallel will have a total capacitance of:

(a) 4 μF

(b) 2 μF

(c) 1 μF

(d) 0.5 μF

---

2. Two, 4 μF capacitors connected in series will have a total capacitance of:

   (a) 8 μF

   (b) 4 μF

   (c) 2 μF

   (d) 0.25 μF.

3. Three capacitors having capacitances of 4, 6 and 12 μF are connected in series across a120V supply. Calculate the –

   (a) equivalent capacitance (2 μF)

   (b) total charge stored (0.00024C)

   (c) charge stored on each capacitor (0.00024C)

4. Three capacitors are connected in series have an equivalent capacitance of 10 μF. If two of them have capacitances of 30 and 60 μF, determine the capacitance of the thirdcapacitor. (20 μF)

5. Determine the number of 4 μF capacitors which must be connected in series to producean equivalent capacitance of 0.25 μF. (16)