Question 751

In the circuit shown in figure 1, calculate potential difference VB-VA. The points A, B and C are three junctions. [Take the current I=2.0 A]

Figure (1)
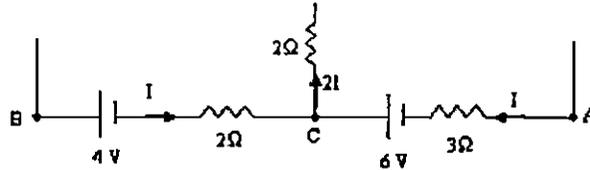
(a)   12 V.
(b)   9.0 V.
(c)   7.0 V.
(d)   11 V.
(e)   8.0 V.

28-6   Multi-Loop Circuits

Question 752

In figure (4) V=14 Volts, R1=2-Ohm, R2=10-Ohm, R3=4-Ohm and R4=6-Ohm. Find the current passing through R1.
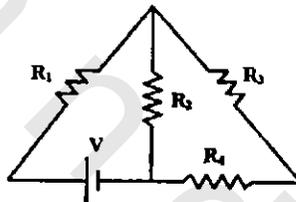

Figure # 4

(a)   2 A.
(b)   3 A.
(c)   5 A.
(d)   9 A.
(e)   1 A.

Question 753

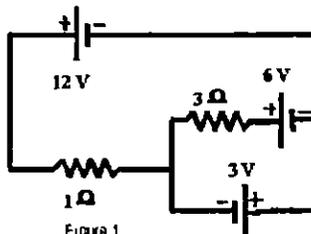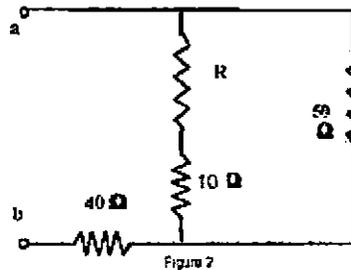In figure (1), find the magnitude and direction of the current passing through the 3 Ohm resistor.

Figure 1

(a)   12 A, downwards.
(b)   6 A, downwards.
(c)   3 A, upwards.
(d)   4 A, upwards.
(e)   9 A, downwards.

28-06

Question 754
The equivalent resistance between terminals a and b in Figure (2) is 65 Ohm. Calculate the value of the resistor R.

(a)   60 Ohms.
(b)   40 Ohms.
(c)   25 Ohms.
(d)   10 Ohms.
(e)   80 Ohms.

28-06
0 61-51%

Question 755
What is the power dissipated in the 3-Ohm resistor shown in Figure 3?

Figure 3

(a)   72 W
(b)   36 W
(c)   22 W
(d)   12 W
(e)   27 W

28-06
0 42-48%

Question 756
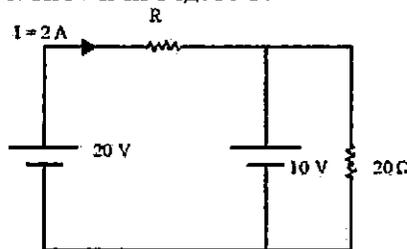Find the value of R in the circuit shown in Figure 5.

Figure 5

(a)   5 Ohms
(b)   8 Ohms
(c)   2 Ohms
(d)   1 Ohms
(e)   7 Ohms

28-06

Question 757
Calculate the voltage E of the battery shown in Figure 1.

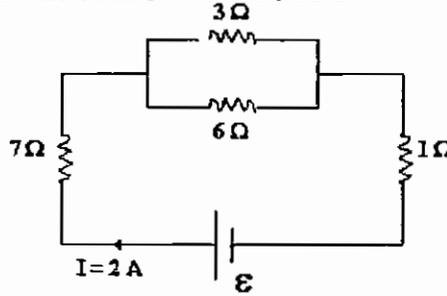FIGURE 1

(a) 30 V
(b) 10 V
(c) 40 V
(d) 20 V
(e) 50 V

28-06

Question 758
The light bulbs in the circuit of Figure 2 are identical. When the switch S is closed, then:

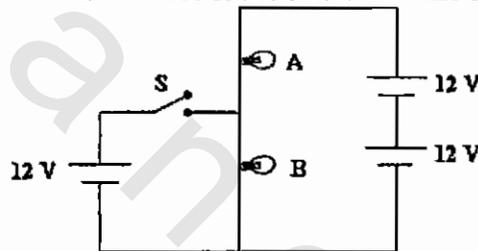

FIGURE 2

(a) nothing changes to the intensity of the light bulbs.
(b) the intensities of both light bulbs increase.
(c) the intensity of light bulb B increases while the intensity of light bulb A decreases.
(d) both light bulbs turn off.
(e) the intensity of light bulb A increases while the intensity of light bulb B decreases.

28-06

Question 759
The circuit in Figure 3 has been connected for a long time. Find the potential difference $V_b - V_a$.
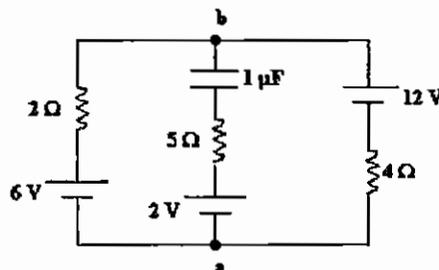

FIGURE 3

(a) 12 V
(b) 10 V
(c) 8 V
(d) 2 V
(e) 6 V

28-06

Question 760

0. 1-36%

Consider the circuit shown in Figure 2. What is the value of current in the 3-ohms resistor?
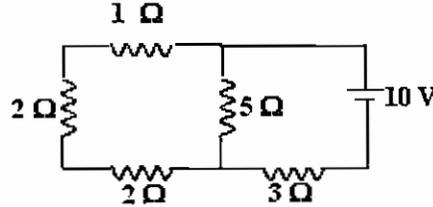

Figure 2

(a)   1.8 A
(b)   10   A
(c)   0.25 A
(d)   5.5 A
(e)   3.6 A

28-06

Question 761

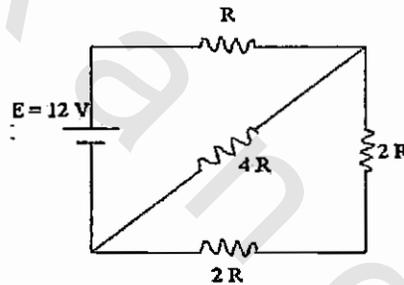In figure (3), if R = 2 Ohms, at what rate is the thermal energy being generated in the 4*R resistor?

Figure 3

(a)   8 Watts.
(b)   16 Watts.
(c)   64 Watts.
(d)   24 Watts.
(e)   12 Watts.

28-06

Question 762

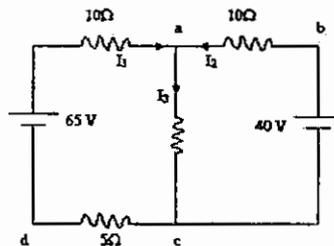For the circuit shown in figure (4), if Va-Vc = 20 Volts, what is the potential difference Vɔ-Vd?

Figure 4

(a)   -55 Volts.
(b)   25 Volts.
(c)   -25 Volts.
(d)   35 Volts.
(e)   55 Volts.

28-06

Question 763

In figure (2), if Vc-Vd=6.0 Volts. what is the emf of the battery?
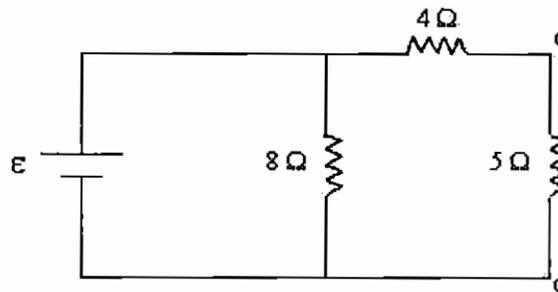

Figure 2

(a)   10.8   Volts.
(b)   13.9   Volts.
(c)   11.7   Volts.
(d)   9.61   Volts.
(e)   18.2   Volts.

28-06

Question 764
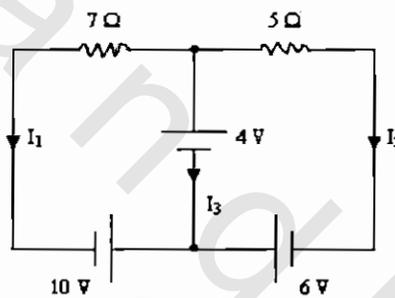
Find the values of the currents in figure (3).

Figure 3

(a)   I1 = 2 A, I2 = -2 A, I3 = zero.
(b)   I1 = -2 A, I2 = -2 A, I3 = -4 A.
(c)   I1 = 2 A, I2 = 2 A, I3 = -4 A.
(d)   I1 = -2 A, I2 = 2 A, I3 = zero.
(e)   I1 = 2 A, I2 = 2 A, I3 = 4 A.

28-06

Question 765

Which of the following statements are WRONG:

1. In order to achieve the lowest resistance from several resistors, they should be connected in parallel.

2. In order to achieve the lowest capacitance from several capacitors, they should be connected in parallel.

3. The resistance of a conductor does not depend on temperature.

4. A dielectric increases the capacitance of a capacitor.

5. The electric flux through a closed surface is always zero.

(a)   2, 3 and 5.
(b)   1 and 4.
(c)   1 and 3.
(d)   2 and 4.
(e)   1, 2 and 3.

28-06

Question 766
0.33-29%

The current in the 8.0 Ohm resistor shown in the circuit of figure (3) is:

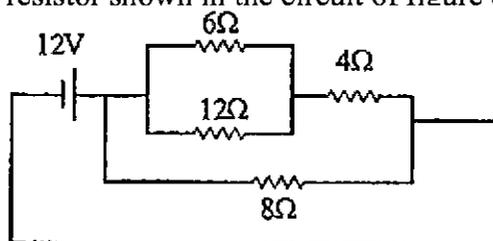**Figure (3)**

(a)   2.4 A.
(b)   3.0 A.
(c)   1.5 A.
(d)   0.67 A.
(e)   0.4 A.

28-06

Question 767

In figure (5), all the resistors have a value of 2 Ohms. The battery is ideal with an emf = 15 V. What is the potential difference across the resistor R3?
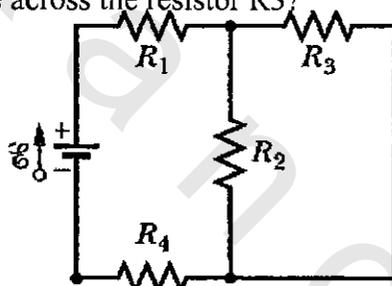

Figure 5

(a)   5.0 Volts.
(b)   2.5 Volts.
(c)   3.0 Volts.
(d)   1.5 Volts.
(e)   15 Volts.

28-06

Question 768

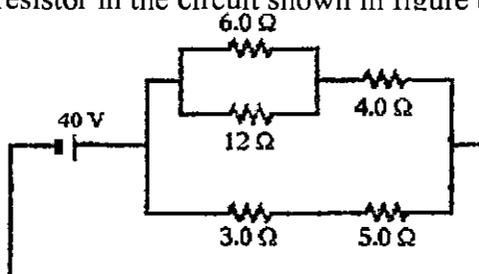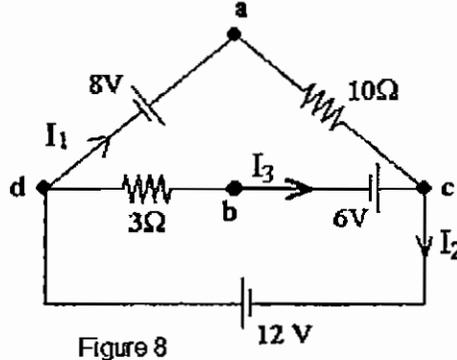The current in the 5.0-ohm resistor in the circuit shown in figure (7) is:

Figure 7

(a)   0.42 A.
(b)   5.0 A.
(c)   2.4 A.
(d)   3.0 A.
(e)   0.67 A.

Question 769
In figure (8), what is the potential difference Va-Vb

Figure 8

(a)   6 V.
(b)   10 V.
(c)   26 V.
(d)   2 V.
(e)   8 V.

Question 770
In figure 6: R1 = 2.0 ohms, R2 = 4.0 ohms, R3 = 8.0 ohms, E1 = 2.0 volts, E2 = 4.0 volts and E3 = 6.0 volts. What is the rate of energy dissipation in R1 ?
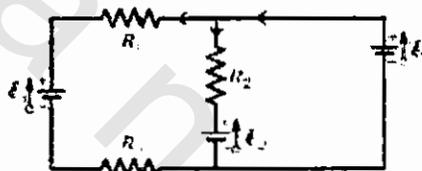

FIGURE 6

(a)   0.32 W
(b)   0.08 W
(c)   0.24 W
(d)   0.40 W
(e)   0.16 W

Question 771
A metal wire of resistance R is cut into three equal pieces that are then connected side by side to form a new wire the length of which is equal to one-third the original length. What is the resistance of the new wire ?
(a)   R/3
(b)   R/9
(c)   3*R
(d)   9*R
(e)   R

Question 772
What maximum power can be generated from an 18-V battery using any combination of a 6 0-ohm resistor and a 9.0-ohm resistor ?
(a)   71 W
(b)   54 W
(c)   80 W
(d)   22 W
(e)   90 W

Question 773

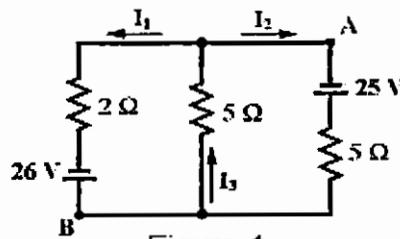For the circuit shown in figure 4, find the potential difference VA - VB, if I1 = 3.0 A and I3 = 4.0 A.

Figure 4

(a)   - 30 V
(b)   + 20 V
(c)   - 20 V
(d)   + 32 V
(e)   - 32 V

Question 774

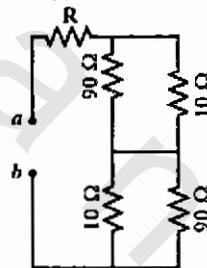The resistance between points a and b in figure 5 is 60 ohms. What is the value of R ?

Figure 5

(a)   42   ohms
(b)   0.5 ohms
(c)   18   ohms
(d)   10   ohms
(e)   50   ohms

Question 775

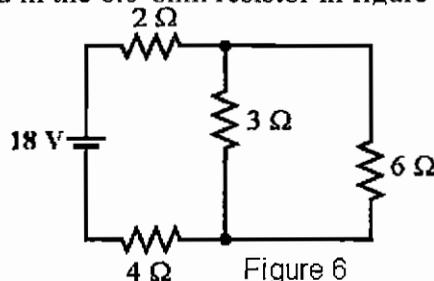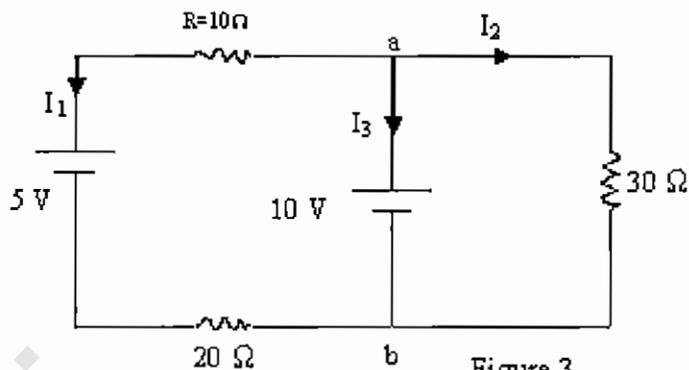Calculate the power dissipated in the 6.0-ohm resistor in figure 6.

Figure 6

(a)   30   W
(b)   1.5 W
(c)   1.7 W
(d)   2.3 W
(e)   3.4 W

28-06
0.41-55%

Question 776
In figure 3, if R = 10 Ohm find the current in R.

Figure 3

(a)   0.2 A.
(b)   - 0.4 A.
(c)   - 1.1 A.
(d)   0.4 A.
(e)   - 0.2 A.

28-06
0.44-61%

Question 777
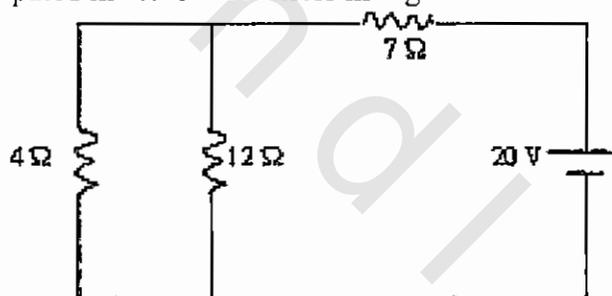What is the power dissipated in 4.0 Ohm resistor in Figure 4.

Figure 4

(a)   3.0 W.
(b)   9.0 W.
(c)   4.3 W.
(d)   1.2 W.
(e)   6.0 W.

28-06
0.5-44%

Question 778
A 6-V battery supplies a total of 48 W to two identical light bulbs connected in parallel. The resistance (in ohm) of each bulb is
(a)   1.5
(b)   3.0
(c)   4.0
(d)   1.0
(e)   0.7

Question 779
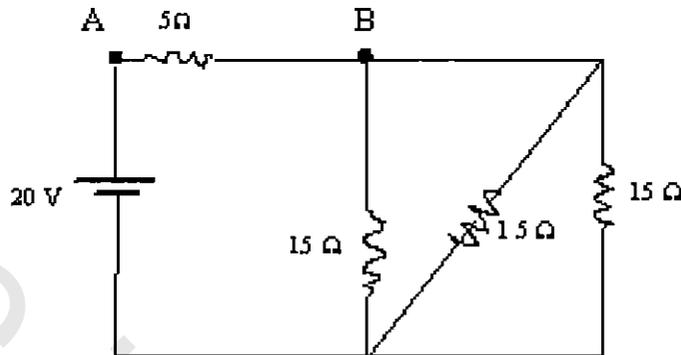Find the potential difference (VB-VA) between points B and A of the circuit shown in figure (4)

Figure 4

(a)   10 volts.
(b)   20 volts.
(c)   5 volts.
(d)   - 10 volts.
(e)   - 5 volts.

Question 780
Find the value of R1 in the circuit of figure (5)
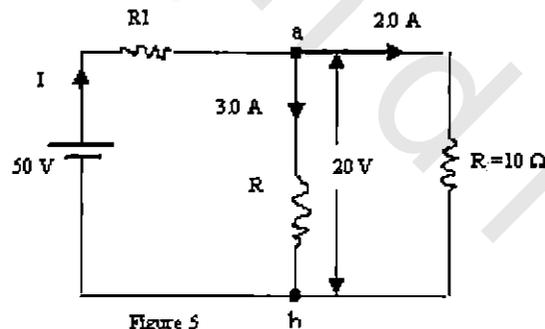

Figure 5

(a)   6.0 ohms.
(b)   8.0 ohms.
(c)   4.0 ohms.
(d)   9.0 ohms.
(e)   2.0 ohms.

Question 781
A single loop circuit contains a resistance R and an ideal battery. If a second resistor is connected in parallel with R:
(a)   the voltage across R will increase.
(b)   the equivalent resistance of the circuit will increase.
(c)   the total current through the battery will increase.
(d)   the current through R will decrease.
(e)   the rate of energy provided by the battery will not change.

Question 782

Three resistors and two batteries are connected as in figure 3. What is the magnitude of the current through the 12-V battery?
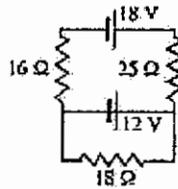
FIGURE 3

(a)   0.30 A
(b)   0.15 A
(c)   0.52 A
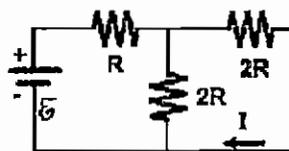(d)   0.82 A
(e)   0.67 A

Question 783

Three resistors are connected as shown in figure 3. The potential difference between points A and B is 26 V. How much current flows through the 4-Ohm resistor?
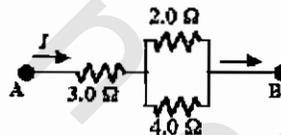
Figure 3

(a)   8.7 A
(b)   4.0 A
(c)   10.0 A
(d)   6.0 A
(e)   2.0 A

Question 784

In the circuit shown in figure 4, I=0.65A and R=15 Ohms. What is the value of the emf of the battery?

Figure 4

(a)   65 V
(b)   17 V
(c)   34 V
(d)   39 V
(e)   25 V