Question 785
In the circuit shown in figure 5, what is the current in the 8.00-Ohm resistor?



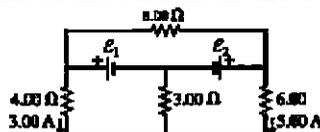**Figure 5**

(a)    11.25 A to the right
(b)    3.38 A to the left
(c)    11.25 A to the left
(d)    2.25 A to the right
(e)    2.25 A to the left

Question 786
A number of 240-Ohms resistors are connected in parallel to a 120-V source. If the maximum current allowed in the circuit is 9 A, determine the largest number of resistors, which can be used in this circuit without exceeding the maximum current.
(a)    9.
(b)    25.
(c)    36.
(d)    18.
(e)    34.

Question 787
In figure 6, three identical light bulbs are connected to a battery. Which one of the following statements is CORRECT?



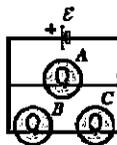**Figure 6**

(a)    The smallest current passes through A.
(b)    The current through all resistors is the same.
(c)    The largest current passes through A.
(d)    The largest current passes through B.
(e)    The largest current passes through C.

## 28-7    The Ammeter and the Voltmeter

## 28-8    RC circuits

Question 788
A capacitor in an RC circuit is charged to 85% of its maximum value in 2.4 s. What is the time constant of this circuit?
(a)    2.4 s
(b)    1.9 s
(c)    1.3 s
(d)    2.9 s
(e)    0.9 s

28-08

## Question 789

A 4.00 micro-F capacitor is charged to 24.0 V. Find the charge on the capacitor 4.00 milli-seconds after it is connected across a 200-Ohm resistor.

(a)     100   micro-C

(b)     0.647 micro-C

(c)     15.5  micor-C

(d)     2.45  micro-C

(e)     0.324 micro-C

28-08
0.32-28%

## Question 790

Which one of the following statements is WRONG:

(a)     The emf of a battery is equal to the terminal voltage when there is no current passing through the battery.

(b)     Two resistors connected in parallel have the same potential difference across them.

(c)     Kirchhoff's rules are statements of conservation of charge and energy.

(d)     A charged capacitor connected to a resistor will discharge faster when the resistance is increased.

(e)     If the voltage is held constant across a resistor, the power dissipated in the resistor decreases when the resistance increases.

28-08
0.50-37%

## Question 791

A certain capacitor (initially uncharged), is connected in in series with a resistor and a battery. After, being charged for 10 ms the charge on the capacitor is half of its maximum value. What is the time constant (RC) of the circuit?

(a)     2.24 milli-s

(b)     45.3 milli-s

(c)     59.2 milli-s

(d)     20.5 milli-s

(e)     14.4 milli-s

28-08

## Question 792

How long will it take a charged capacitor of $50.0*10**(-6)$ F to loss 30% of its initial energy if allowed to discharge through a 40 Ohm resistor?

(a)     no enough information.

(b)     $0.36*10**(-3)$ s.

(c)     $0.18*10**(-3)$ s

(d)     $0.02*10**(-3)$ s.

(e)     Infinity.

28-08

## Question 793
The capacitor in figure (1) is initially charged to 50 V and then the switch is closed. What charge flows out of the capacitor during the first minute after the switch was closed?
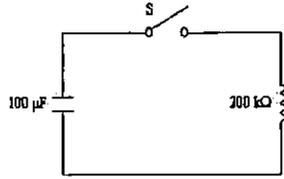


Figure 1

(a)    3.6 mC.
(b)    4.8 mC.
(c)    0.3 mC.
(d)    1.4 mC.
(e)    1.7 mC.

28-08

## Question 794
At t=0, a $2.0*10**(-6)$ Farad capacitor is connected in series to a 20-V battery and a $2.0*10**6$ Ohm resistor. How long does it take for the potential difference across the capacitor to be 12 V?
(a)    3.7 s.
(b)    2.0 s.
(c)    2.8 s.
(d)    0.6 s.
(e)    1.2 s.

28-08
0.39-50%

## Question 795
A certain capacitor, in series with a 720-ohm resistor, is being charged. At the end of 10 milliseconds, its charge is 50 % of the maximum charge. The capacitance is:
(a)    20  micro-Farad
(b)    14  micro-Farad
(c)    10  micro-Farad
(d)    7.2 micro-Farad
(e)    9.6 micro-Farad

28-08
0.37-27%

## Question 796
In the circuit shown in figure 3, the capacitor was initially uncharged. At time t = 0, switch S is closed. If T denotes the time constant, the current through the 3-ohm resistor at t = T/10 is



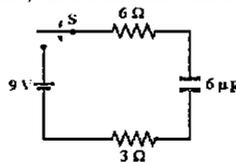Figure 3

(a)    zero.
(b)    0.90 A.
(c)    1.5  A.
(d)    2.5  A.
(e)    3.0  A.

28-08
### Question 797
0.40-70%
A resistor $R = 30*10**6$ Ohm is connected in series with a capacitor $C = 3.0$ micro-F and a 21-Volt battery for long time. The battery was removed, then R and C are connected in a loop. What is the energy stored in the capacitor C after one minute?
(a)    47 micro-J.
(b)    11 micro-J.
(c)    204 micro-J.
(d)    24 micro-J.
(e)    174 micro-J.

28-08
### Question 798
0.57-41%
A capacitor, initially uncharged in a single-loop RC circuit, is charged to 85% of its final potential difference in 2.4 s. What is its time constant in seconds?
(a)    2.8
(b)    1.5
(c)    zero
(d)    1.7
(e)    1.3

28-08
### Question 799
0.53-45%
A 1-micro-Farad uncharged capacitor and a 3000-ohm resistor are connected in series, and then (at time $t = 0$) a 6-V potential difference is applied across them. Find the time at which the voltage on the capacitor is 3.8 V.
(a)    8.0 ms
(b)    15  ms
(c)    1.5 ms
(d)    3.0 ms
(e)    12  ms

28-08
### Question 800
0.24-64%
A capacitor of capacitance C is discharging through a resistor of resistance R. In terms of RC, when will the energy stored in the capacitor reduces to one fifth of its initial value?
(a)    0.70 RC.
(b)    1.20 RC.
(c)    0.55 RC.
(d)    0.80 RC.
(e)    0.35 RC.

28-08
### Question 801
0.61-53%
A 5.0-micro-F capacitor is fully charged by connecting it to a 12-V battery. After disconnecting the battery, it was allowed for capacitor to discharge through a simple RC circuit, with a time constant of 4.0 s. What is the charge on the capacitor after one time constant has elapsed?
(a)    $2.2*10**(-5)$ C
(b)    $3.8*10**(-5)$ C
(c)    $1.2*10**(-5)$ C
(d)    $7.4*10**(-5)$ C
(e)    $5.5*10**(-5)$ C