



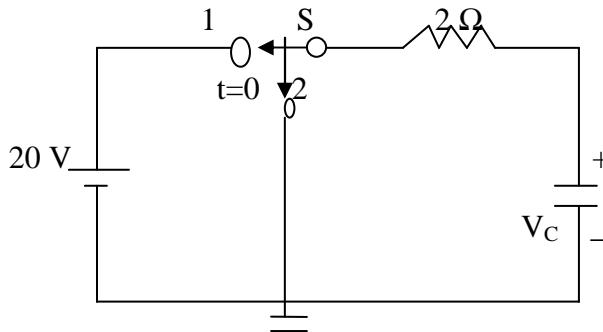
Date: 25-08-2012

Time: 30 Min

Course: E2Sem1_(CSE-ECE)

Max Marks: 10

1. For the circuit shown below, the switch S was in position 1 for a long time and it is Thrown to Position 2 at reference time $t=0$, then find $V_C(\infty)$.



- (A) 40 V (B) 60 V (C) 20 V (D) 0 V

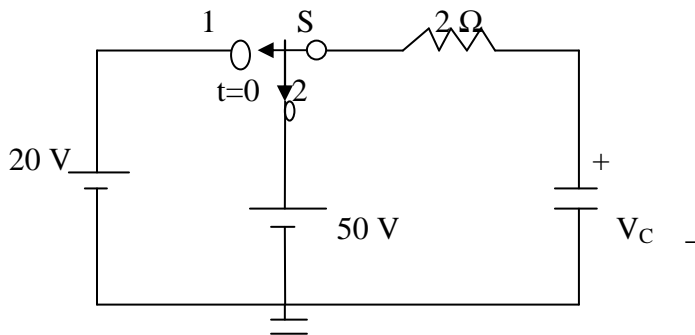
2. **Assertion (A):** The voltage across an inductor cannot change instantaneously.

Reason (R): The charge in a capacitive system can increase or decrease in zero time if an infinite current is flowing through the capacitor within a zero time.

- A) Both **A & R** are correct, but **R** is not correct explanation for **A**.
B) Both **A & R** are correct, and **R** is the correct explanation for **A**.
C) Both **A & R** are incorrect.
D) **A** is incorrect but **R** is correct.

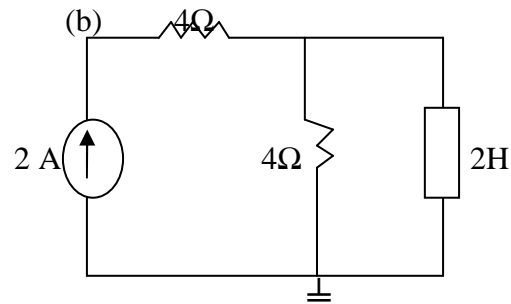
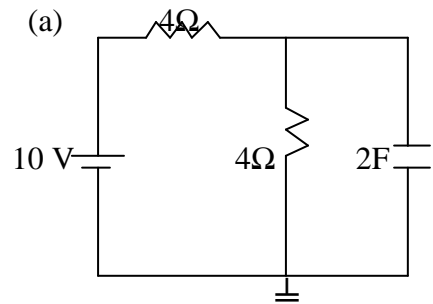
3. For the circuit shown below, the switch S was in position 1 for a long time and it is

Thrown to Position 2 at reference time $t=0$, then find voltage across resistor just after switching



- (B) 40 V (B) 30 V (C) 20 V (D) 0 V

4. Let T_1 be the time constant of a circuit shown in fig (a), and T_2 be the time constant of the circuit shown in fig (b), then $T_1 : T_2$ is



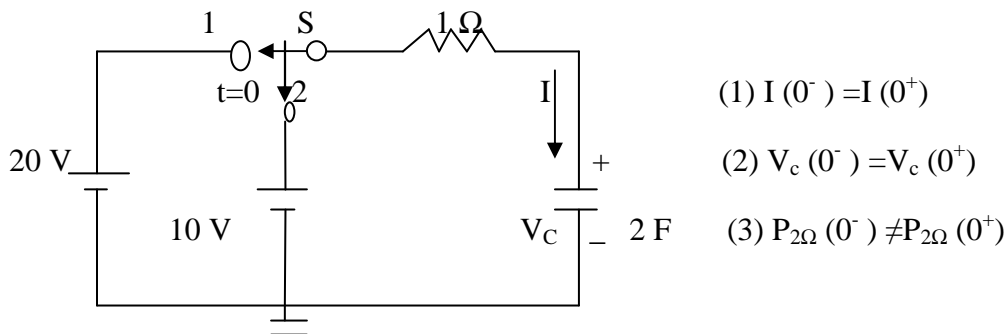
(A) 1: 1

(B) 1: 2

(C) 2: 1

(D) 4: 1

5. The switch 'S' was in position 1 for a long time, and is thrown to position 2 to at $t=0$ time



(A) 1 & 2 are correct

(B) 2 & 3 are correct

(C) 3 & 1 are correct

(D) 1 & 2 and 3 are correct

6. **Assertion (A):** The current through a capacitor cannot change instantaneously.

Reason (R): The charge in a capacitive system can increase or decrease in zero time for finite current.

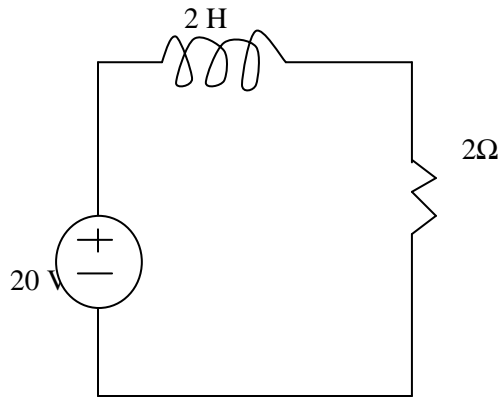
A) Both **A** & **R** are correct, but **R** is not correct explanation for **A**.

B) Both **A** & **R** are correct, and **R** is the correct explanation for **A**.

C) Both **A** & **R** are incorrect.

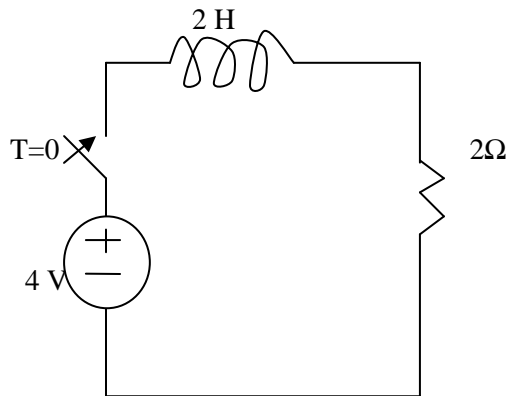
D) **A** is incorrect but **R** is correct.

7. For the following circuit, calculate the time constant of the circuit.



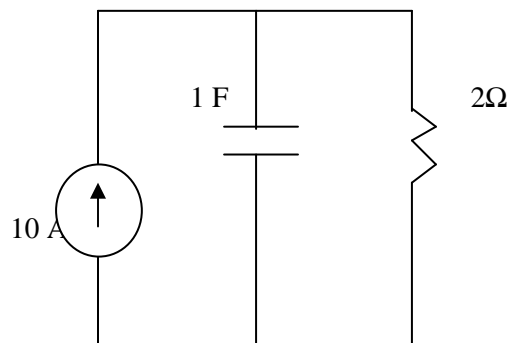
- (A) 2 sec
- (B) 1 sec
- (C) 4 sec
- (D) 6 sec

8. for the following circuit, if the initial current through an inductor is 1A. Find the current through inductor at $t=\infty$, if the switch is closed at $t=0$.



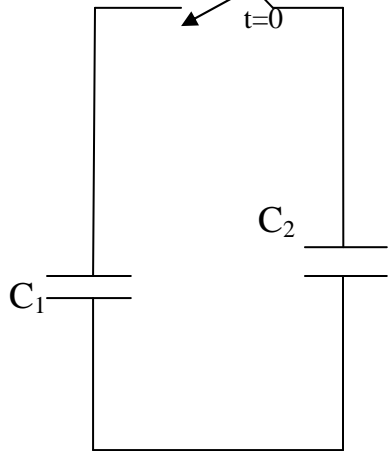
- (A) 2 A
- (B) 1 A
- (C) 4 A
- (D) 5 A

9. For the following circuit, calculate the time constant of the circuit.



- (A) 2 sec
- (B) 1 sec
- (C) 4 sec
- (D) 6 sec

10. In the following circuit, $C_1=1\text{F}$, $C_2=2\text{F}$ and voltage across C_1 is 10V and across C_2 is 10V. Switch is closed at $t=0$. Then $V_{C1}(0^+)$, $V_{C2}(0^+)$?



- (A) 10 V, 20 V (B) 20 V, 10 V (C) 15 V, 15 V (D) 10 V, 10 V

Key:

- 1.D
2.D
3.B
4.D
5.B
6.C
7.B
8.A
9.A
10.D