

## EXPEREMENT-1

**AIM:** To verify superposition theorem with dc and ac sources using MULTISIM software.

**SOFTWARE REQUIRED:** MULTISIM software.

### **THEORY:**

#### **Superposition theorem:**

“In a linear circuit, containing more than one independent energy sources, the overall response (Voltage or current) in any branch of the circuit is equal to sum of the response due to each independent source acting one at a time while making other source in-operative.”

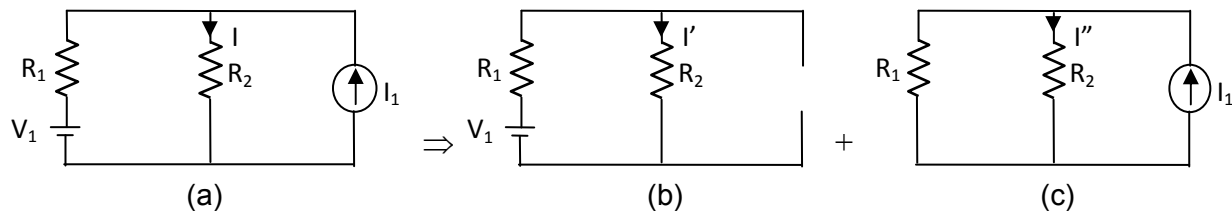
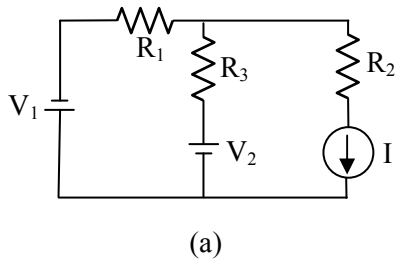


Fig.1

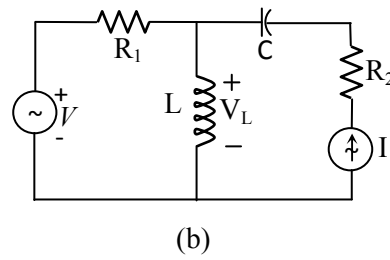
So according to superposition theorem  $I = I' + I''$

#### **Circuits:**

- a. For DC source:** Find out current in  $R_3$  in the circuit shown in figure 2a by Superposition theorem. Assume any value for  $V_1$ ,  $V_2$ ,  $I$ ,  $R_1$ ,  $R_2$  but  $R_3 =$  your class roll no.



(a)



(b)

Fig. 2

- b. For AC source:** Find out voltage across  $L$  in the circuit shown in figure 2b by Superposition theorem. Assume any value for  $V$ ,  $I$ ,  $L$ ,  $C$ ,  $R_1$  but  $R_2 =$  your class roll no.

## **SOFTWARE CIRCUITS:**

## **CALCULATIONS:**

**RESULT:** The following circuit verifies the superposition theorem.

## **PRECAUTION:**

1. Ground the circuit before simulation.
2. Design circuit carefully.
3. Save the file properly
4. Don't change the setting the software and computer.