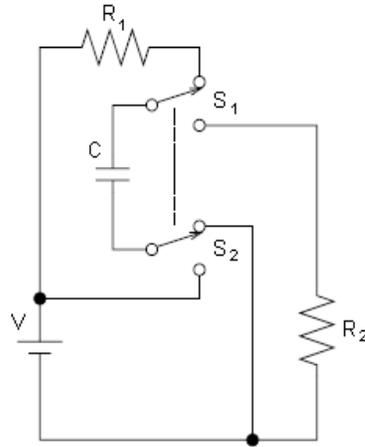


3. Consider the following circuit containing two switches, S_1 and S_2 , which change the way the capacitor, C , is connected in the circuit:



- (a) Draw the equivalent circuit when the switches are in the position indicated in the diagram and calculate the potential difference that develops across the capacitor in the limit when $t \gg 1/R_1C$.
- (b) At some later time, the both S_1 and S_2 switched simultaneously. Draw the equivalent circuit and calculate the potential difference across R_2 the instant after this event.

In this type of circuit is commonly found in DC-DC converters. In such a circuit configuration, C is called a *flying capacitor*.