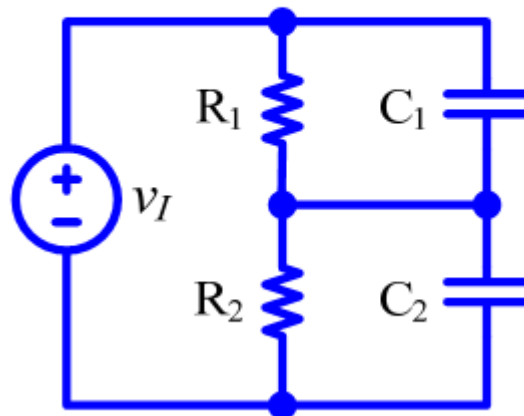


Find the time constant of the circuit shown in Figure 11.



Solution:

Set the source to zero (i.e short circuit v_I) to obtain the circuit in Figure 12-a.

The circuit in Figure 12-a may be further simplified by noting that R_1 and R_2 are parallel and C_1 and C_2 are parallel to obtain the circuit in Figure 12-b.

From Figure 12, the equivalent capacitance is $C_{eq} = C_1 + C_2$, and the equivalent resistance is $R_{eq} = R_1 \parallel R_2$

Thus, the time constant will equal to $\tau = \{C_1 + C_2\} \{R_1 \parallel R_2\}$

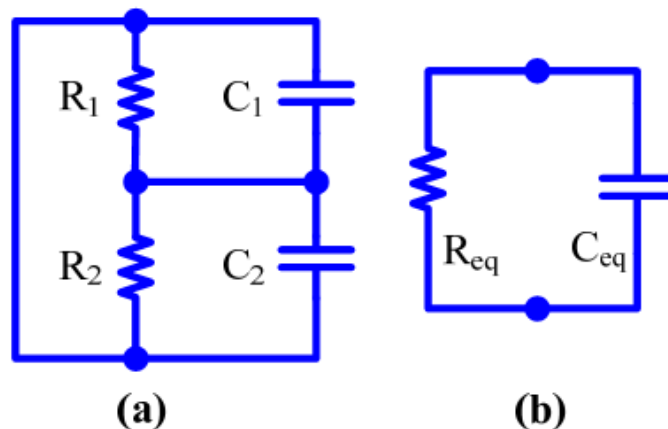


Figure 12 Reduction of the circuit in Figure 11 for time constant calculation