



* By ohm's law $\Rightarrow I = V/R$

by considering LED is ideal diode \rightarrow (Short Circuit in forward bias)

$$\text{KVL in loop } \Rightarrow 11.1 - \square - 0 = 0$$

$$\Rightarrow \square = 11.1 \text{ V}$$

$$\rightarrow \text{getting back to ohm's law } \Rightarrow I = \frac{11.1}{3.3} = 3.36 \text{ A}$$

$$\rightarrow \text{multiply it by 5 hours } \Rightarrow 3.36 \times 5 = 16.81 \text{ A/hour}$$

$$\rightarrow \text{divide it by the Ah of one battery } \Rightarrow \frac{16.81}{5.2} = 3.23 \text{ Battery}$$

$$\approx 4 \text{ Batteries}$$

\therefore we need 4 Batteries to light it up for more than 5 hours.