

Question 27298

The energy of the capacitor $W = \frac{CU^2}{2} = \frac{qU}{2}$.

Also, $W_0 = \frac{q_0 U}{2} = 64 J$.

If the change in charge is $q \rightarrow \frac{q}{4}$, then new value of energy of capacitor is

$$W_1 = \frac{q_0 U}{8} = \frac{W_0}{4} = 16 J \text{ .}$$

Hence, $16 J$ of energy remains when charge has decreased to quarter of its original value.