

19 Combining capacitors and energy — Part 2 — Answers

Answers

Work through these after trying the questions yourself.

19.1 They add: $C = C_1 + C_2$.

19.2 Their reciprocals add: $1/C = 1/C_1 + 1/C_2$.

19.3 $4\ \mu\text{F}$.

19.4 $\frac{1}{C} = \frac{1}{6} + \frac{1}{6} = \frac{2}{6}$, so $C = 3\ \mu\text{F}$.

19.5 $W = \frac{1}{2}QV$.

19.6 $W = \frac{1}{2}QV = \frac{1}{2}(2.0 \times 10^{-3})(8.0) = 8.0 \times 10^{-3}\ \text{J}$.

19.7 The capacitor can release its stored energy in a tiny fraction of a second, giving a large burst of power. A battery delivers its energy much more slowly, so it could not produce the bright, brief flash on its own.