

Solutions

Each answer shows the steps, then the **result**.

2.1

- $C = \frac{Q}{V} = \frac{6.0 \times 10^{-4}}{12} = 5.0 \times 10^{-5} \text{ F}$

2.2

- it increases (smaller separation gives larger capacitance)

2.3

- $U = \frac{1}{2}CV^2 = \frac{1}{2}(5.0 \times 10^{-6})(20)^2 = 1.0 \times 10^{-3} \text{ J}$

3.1 B

3.2 B

3.3

(a)

- $Q = CV = (100 \times 10^{-6})(50) = 5.0 \times 10^{-3} \text{ C}$

(b)

- $U = \frac{1}{2}CV^2 = \frac{1}{2}(100 \times 10^{-6})(50)^2 = 0.125 \text{ J}$