

Solutions

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

2.1

- $C = \frac{\epsilon_0 A}{d} = \frac{(8.85 \times 10^{-12})(0.020)}{1.0 \times 10^{-3}} = 1.8 \times 10^{-10} \text{ F}$

2.2

- $C = 4.0 + 4.0 = 8.0 \text{ } \mu\text{F}$

2.3

- $U = \frac{1}{2}CV^2 = \frac{1}{2}(10 \times 10^{-6})(12)^2 = 7.2 \times 10^{-4} \text{ J}$

3.1 B

3.2 B

3.3

(a)

- $Q = CV = (5.0 \times 10^{-6})(100) = 5.0 \times 10^{-4} \text{ C}$

(b)

- $U = \frac{1}{2}CV^2 = \frac{1}{2}(5.0 \times 10^{-6})(100)^2 = 0.025 \text{ J}$