

10 Electric potential and capacitors — Part 2 — Answers

Answers

Work through these after you have tried the questions yourself.

2.1 the electric potential energy carried by each unit of charge (energy per coulomb), in volts.

2.2 $U = qV = 3.0 \times 4.0 = 12 \text{ J}.$

2.3 $Q = CV = 50 \times 10^{-6} \times 10 = 5.0 \times 10^{-4} \text{ C}.$

2.4 $U = \frac{1}{2}CV^2 = \frac{1}{2} \times 50 \times 10^{-6} \times 10^2 = 2.5 \times 10^{-3} \text{ J}.$

2.5 potential is a scalar (a single number), so the potentials from several charges just add; the field is a vector, so fields must be added by direction as well as size.