Electrostatics: Capacitors

The capacitance of the capacitor describes its capacity, or capaciousness for charge.

1. A capacitor sores 6.0μC of charge. The capacitance is 0.050μF. The separation between the plates is 0.400mm.

A. Find the area of each plate.

B. Find the field between the plates.

C. Find the energy stored by the capacitor

2. An electron gains 1500eV of kinetic energy when accelerated through a set of parallel plates. The plates hold 8.0μC of charge. Find the capacitance.

3. A capacitor has a capacitance of 2.5x10-5F. The distance between the plates is then halved, and a dielectric with κ=3.0. All other factors (A, ∆V, Q) remain constant. What is the new capacitance?

4. A capacitor has a capacitance of 65μF. The potential difference across the plates is 120V. The area of each plate is 0.0060m2. Find the field between the plates.

5. How much energy is stored by a capacitor with 9.4μC of charge and a capacitance of 160μF?

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