

36. A parallel-plate capacitor has a capacitance C_0 . A second parallel-plate capacitor has plates with twice the area and twice the separation. The capacitance of the second capacitor is most nearly
- (A) $\frac{1}{4} C_0$
 - (B) $\frac{1}{2} C_0$
 - (C) C_0
 - (D) $2 C_0$
 - (E) $4 C_0$
37. When lighted, a 100-watt light bulb operating on a 110-volt household circuit has a resistance closest to
- (A) 10^{-2} ohm
 - (B) 10^{-1} ohm
 - (C) 1 ohm
 - (D) 10 ohms
 - (E) 100 ohms
38. If i is current, t is time, E is electric field intensity, and x is distance, the ratio of $\int i dt$ to $\int E dx$ may be expressed in
- (A) coulombs
 - (B) joules
 - (C) newtons
 - (D) farads
 - (E) henrys
39. The electric field E just outside the surface of a charged conductor is
- (A) directed perpendicular to the surface
 - (B) directed parallel to the surface
 - (C) independent of the surface charge density
 - (D) zero
 - (E) infinite