Chapter 26	Capacitance

26-3	Calculating the capacitance

26-03

Question 636

A parallel plate capacitor of capacitance C has a charge of magnitude q when connected to a battery of potential difference V. After being fully charged, the capacitor is disconnected from the battery and the separation between the plates is doubled. Which one of the following statements is TRUE?
(a)   The capacitor's capacitance doubles.
(b)   The magnitude of the charge on the plates doubles.
(c)   The voltage across the plates doubles.
(d)   The magnitude of the charge on the plates is halved.
(e)   The voltage across the plates is halved.

26-03
(.41-46%)

Question 637

A parallel-plate capacitor having square plates of side 10 cm separated by a distance of 1 mm. If the capacitor is charged to 12 V, what is the magnitude of the charge found on each plate?
(a)   zero
(b)   1.06   nano-C
(c)   2.12   nano-C
(d)   6.18   nano-C
(e)   8.48   nano-C

26-03
(_29-30%)

Question 638

A parallel plate capacitor is connected to a battery that has a constant voltage. If the capacitor plates are pulled apart (while still connected to the battery),
(a)   Both the electric field and the charge on the plates increase.
(b)   Both the electric field and the charge on the plates decrease.
(c)   The electric field remains constant and the charge on the plate decreases.
(d)   Both the electric field and the charge on the plate remain constant.
(e)   The electric field decreases and the charge on the plates remains constant.

26-03

Question 639

A parallel-plate capacitor has a plate area of 0.2 m**2 and a plate separation of 0.1 mm. If the charge on each plate has a magnitude of 4.0*10**(-6) C the electric field between the plates is approximately:
(a)   Zero.
(b)   1.4*10**4 V/m.
(c)   9.2*10**3 V/m.
(d)   4.2*10**6 V/m.
(e)   2.3*10**6 V/m.

26-03
061-69%

Question 640

A parallel plate capacitor has a plate area of 0.2 m**2 and a plate separation of 0.1 mm. The charge on each plate is 4.0 microCoulombs. What is the electric field between the plates ?
(a)   1.0*10**6   V/m
(b)   4.0*10**12 V/m
(c)   2.3*10**6   V/m
(d)   4.0*10**2   V/m
(e)   zero