1. A small object has charge Q. Charge q is removed from it and placed on a second small object. The two objects are placed 1 m apart. For the force that each object exerts on the other to be a maximum. q should be:
   A) $2Q$
   B) Q
   C) $Q/2$
   D) $Q/4$
   E) 0

2. Two small charged objects repel each other with a force F when separated by a distance d. If the charge on each object is reduced to one-fourth of its original value and the distance between them is reduced to $d/2$ the force becomes:
   A) $F/16$
   B) $F/8$
   C) $F/4$
   D) $F/2$
   E) F

3. Charges q_1 and q_2 are on the x axis, with q_1 at $x = a$ and q_2 at $x = 2a$. For the net force on a another charge at the origin to be zero q_1 and q_2 must be related by q_2=:
   A) $2q_1$
   B) $4q_1$
   C) $-2q_1$
   D) $-4q_1$
   E) $-q_1/4$

4. A 2-μC charge is placed at the origin, an identical charge is placed 2 m from the origin on the x axis, and a third identical charge is placed 2 m from the origin on the y axis. The magnitude of the force on the charge at the origin is:
   A) 9.0×10^{-3} N
   B) 6.4×10^{-3} N
   C) 1.3×10^{-2} N
   D) 1.8×10^{-2} N
   E) 3.6×10^{-2} N

Answer Key :

1. C
2. C
3. D
4. C