MY EGURU PVT. LTD
ELECTROSTATICS

DPP 1

Q.1 Which charge value is not possible:
(A) 1.6×10^{-18} cb (B) 3.2×10^{-17}cb
(C) 3.2×10^{-21} (D) 1.6×10^{-22}cb

Q.2 Consider three identical metal spheres, A, B and C Sphere A carries a charge of +5q. Sphere B carries a charge of -q. Sphere C carries no net charge. Sphere A and B are touched together and then separated. Sphere C is then touched to sphere A and separated from it. Lastly, sphere C is touched to sphere B and separated from it. How much charge ends up on sphere C ?
(A) 2q (B) 3q (C) 2.5q (D) 1.5q

Q.3 Two bodies A & B are attracted to each other, and two bodies B & C are also attracted to each other. If A & C are held close together they will. [Nothing is know about charges of A, B, C in Question]
(A) attract (B) repel
(C) not affect each other (D) more information is needed to answer

Q.4 Two identical conducting spheres, having charges of opposite sign, attract each other with a force of 0.108 N when separated by 0.5 m. The sphere are touched together and then removed, and placed at separation of 0.5 m, thereafter, they repel each other with a force of 0.036 N. The initial charges on the sphere are :
(A) $\pm$ 5 x 10^{-6} C and $\mp$ 15 x 10^{-6}C (B) $\pm$ 1.0 x 10^{-6} C and $\mp$ 3.0 x 10^{-6}C
(C) $\pm$ 2.0 x 10^{-6} C and $\mp$ 6.0 x 10^{-6}C (D) $\pm$ 0.5 x 10^{-6} C and $\mp$ 1.5 x 10^{-6}C

Q.5 Two point charges Q_1 & Q_2 are 3m apart and their sum of charges is $10\mu C$. If force of attraction between them is 0.075N, then the value of Q_1 & Q_2 respectively are –
(A) $5\mu C$, $5\mu C$ (B) $15\mu C$,$-5\mu C$
(C) $5\mu C$,$15\mu C$ (D) $-15\mu C$, $5\mu C$

Q.6 Two point charge repel each other with a force of 100N. One of the charges is increased by 10% & the other is reduced by 10%. The new force of repulsion at the same distance would be-
(A) 100N (B) 121N (C) 99N (D) None of these

Q.7 A point charge +Q is placed at the centroid of an equilateral triangle. When a second charge +Q is placed at a vertex of the triangle, the magnitude of the electrostatic force on the central charge is 8 N. The magnitude of the net force on the central charge when a third charge +Q is placed at another vertex of the triangle is –
(A) zero (B) 4N (C) $4\sqrt{2}$ N (D) 8N

ANSWER KEY

1. (C,D)
2. (D)
3. (D)
4. (B)
5. (B)
6. (C)
7. (D)