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TARGET : NEET (UG) 2024

Course : SARANSH (Youtube Live CRASH COURSE)

PHYSICS
DPP
DAILY PRACTICE PROBLEMS
DPP NO. 1

PHYSICS: ELECTROSTATICS

DPP No. : 1

1. On moving a charge of 20 coulombs by 2 cm, 2J of work is done, then the potential difference between the point is :

(1) 0.1 V (2) 8 V (3) 2 V (4) 0.5 V

2. A charged particle q is shot towards another charged particle Q which is fixed, with a speed v. It approaches Q upto a closest distance r and then returns. If q was given a speed 2v, the closest distance of approach would be :

(1) r (2) 2r (3) r/2 (4) r/4

3. Which of the following is not correctly matched?

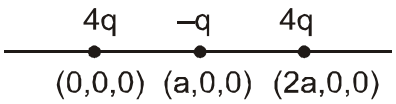
(1) discovery of electron - Thomson

(2) concept of lines of force - Faraday

(3) quantisation of charge - Milikan

(4) e/m of electron - Milikan

4. Three charges + 4q, -q and +4q are kept on a straight line at position (0, 0, 0), (a, 0, 0) and (2a, 0, 0) respectively. Considering that they are free to move along the x-axis only



(1) all the charges are in stable equilibrium

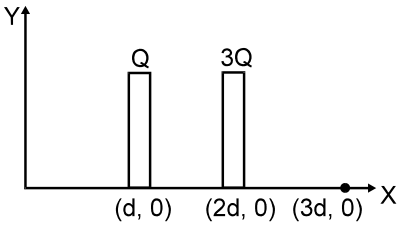
(2) all the charges are in unstable equilibrium

(3) only the middle charge is in stable equilibrium

(4) only middle charge is in unstable equilibrium

5. Two very large thin conducting plates having same cross-sectional area are placed as shown in figure they are carrying charges 'Q' and '3Q' respectively. The variation of electric field as a function at x (for x = 0 to x = 3d) will be best represented by.

दो बहुत लम्बी पतली चालक प्लेटें जिनके अनुप्रस्थ काट क्षेत्रफल समान है, चित्रानुसार रखी हैं। इन पर क्रमशः 'Q' तथा '3Q' आवेश उपस्थित है। विद्युत क्षेत्र में दूरी x के फलन के रूप में (x = 0 से x = 3d तक) परिवर्तन का सही प्रदर्शन है।



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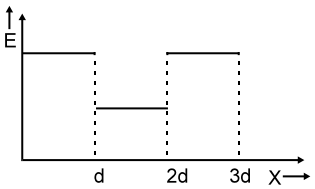

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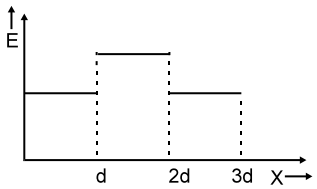

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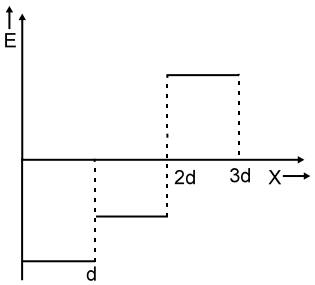

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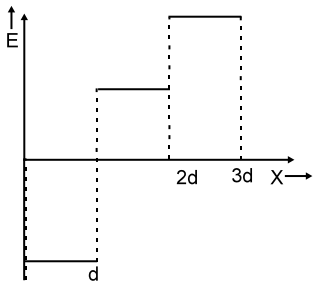

6. Two identical metallic sphere are charged with 10 and -20 units of charge. If both the spheres are first brought into contact with each other and then are placed to their previous positions, then the ratio of the force in the two situations will be :-

(1) -8 : 1 (2) 1 : 8 (3) -2 : 1 (4) 1 : 2

7. If an electron is placed in a uniform electric field, then the electron will :

(1) experience no force.
(2) moving with constant velocity in the direction of the field.
(3) move with constant velocity in the direction opposite to the field.
(4) accelerate in direction opposite to field.

8. Two infinite linear charges are placed parallel at 0.1 m apart. If each has charge density of 5μ C/m, then the force per unit length of one of linear charges in N/m is :

(1) 2.5 (2) 3.25 (3) 4.5 (4) 7.5

9. A dipole of dipole moment p, is placed in an electric field $\vec{E}$ and is in stable equilibrium. The torque required to rotate the dipole from this position by angle θ will be -

(1) pE cos θ (2) pE sin θ (3) pE tan θ (4) –pE cosθ

10. Total flux coming out of some closed surface is :

(1) q/ε_0 (2) ε_0/q (3) $q\varepsilon_0$ (4) $\sqrt{q/\varepsilon_0}$