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AZIMABAD, BALASORE



WEEKLY TEST CHAPTER 1 TEST 1

CLASS: XII

SUBJECT: PHYSICS

FM: 20

TIME: 45 MIN

(1 MARK)

1. The figure here shows electric field lines. The electric field strength at P_1 is E_1 and that at P_2 is E_2 . If distance between P_1 , P_2 is r , then which of the following statement is true?



- (a) $E_1 > E_2$ (b) $E_1 < E_2$ (c) $E_2 = rE_1$ (d) $E_2 = E_1/r^2$

2. Two charges 10 pC and 5 pC are placed 20 cm apart. The ratio of Coulomb's force experienced by them is:

- (a) 2 : 5 (b) 1 : 1 (c) 3 : 7 (d) None of these

3. Which of the following method is an indirect method of charging:

- (a) charging by induction (b) charging by physical contact
(c) charging by friction (d) none of these

4. Write unit electric field.

5. Assertion: Electric lines of field cross each other.

Reason: Electric field at a point superimpose to give one resultant electric field.

- (a) If both Assertion and Reason are correct and the Reason is a correct explanation of the Assertion.
(b) If both Assertion and Reason are correct but Reason is not a correct explanation of the Assertion.
(c) If the Assertion is correct but Reason is incorrect.
(d) If both the Assertion and Reason are incorrect

6. State and explain Coulomb's law. Write unit of ϵ_0 . (2 MARKS)

7. Two charged spheres of 3C and 9C are in contact to each other. Find their charges in equilibrium and also find no. of electrons transferred in equilibrium. (2 MARKS)

8. If a dipole is kept in a uniform electric field E , derive the expression for torque experienced by it.

Diagrammatically represent the position of the dipole in stable and unstable equilibrium. (3 MARKS)

9. Three charges $+3\mu\text{C}$, $-2\mu\text{C}$ and $+2\mu\text{C}$ are placed at the corners of an equilateral triangle of side 1m. Find net force on $+3\mu\text{C}$. (3 MARKS)

10. (5 MARKS)

- a) An electric dipole of dipole moment \vec{P} consists of point charges $+q$ and $-q$ separated by a distance $2l$. Deduce the expression for \vec{E} due to dipole at a distance x from the centre of dipole in axial line and hence show that for $x \gg l$ $\vec{E} = \frac{2K\vec{P}}{x^3}$. Write relation between \vec{E}_{axial} and $\vec{E}_{\text{equatorial}}$.