

Electric Charges and Fields

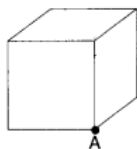
1. The surface considered for Gauss's law is called

- (a) Closed surface
- (b) Spherical surface
- (c) Gaussian surface
- (d) Plane surface

▼ **Answer**

Answer: c

2. The total flux through the faces of the cube with side of length a if a charge q is placed at corner A of the cube is



- (a) $\frac{q}{8\epsilon_0}$
- (b) $\frac{q}{4\epsilon_0}$
- (c) $\frac{q}{2\epsilon_0}$
- (d) $\frac{q}{\epsilon_0}$

▼ **Answer**

Answer: a

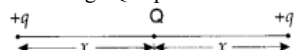
3. Which of the following statements is not true about Gauss's law?

- (a) Gauss's law is true for any closed surface.
- (b) The term q on the right side of Gauss's law includes the sum of all charges enclosed by the surface.
- (c) Gauss's law is not much useful in calculating electrostatic field when the system has some symmetry.
- (d) Gauss's law is based on the inverse square dependence on distance contained in the coulomb's law

▼ **Answer**

Answer: c

4. A charge Q is placed at the centre of the line joining two point charges $+q$ and $+q$ as shown in the figure. The ratio of charges Q and q is



- (a) 4
- (b) $1/4$
- (c) -4
- (d) $-1/4$

▼ **Answer**

Answer: d

5. The force per unit charge is known as

- (a) electric flux
- (b) electric field
- (c) electric potential
- (d) electric current

▼ **Answer**

Answer: b

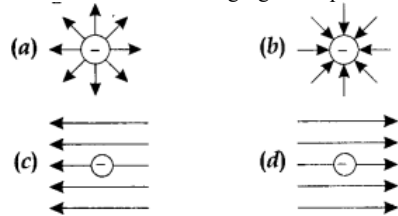
6. Electric field lines provide information about

- (a) field strength
- (b) direction
- (c) nature of charge
- (d) all of these

▼ **Answer**

Answer: d

7. Which of the following figures represent the electric field lines due to a single negative charge?



▼ **Answer**

Answer: b

8. The SI unit of electric flux is

- (a) $\text{N C}^{-1} \text{m}^{-2}$
- (b) N C m^{-2}
- (c) $\text{N C}^{-2} \text{m}^2$
- (d) $\text{N C}^{-1} \text{m}^2$

▼ **Answer**

Answer: d

9. The unit of electric dipole moment is

- (a) newton
- (b) coulomb
- (c) farad
- (d) debye

▼ **Answer**

Answer: d

10. Consider a region inside which, there are various types of charges but the total charge is zero. At points outside the region

- (a) the electric field is necessarily zero.
- (b) the electric field is due to the dipole moment of the charge distribution only.
- (c) the dominant electric field is inversely proportional to r^3 , for large r (distance from origin).
- (d) the work done to move a charged particle along a closed path, away from the region will not be zero.

▼ **Answer**

Answer: c

Answer: d

11. SI unit of permittivity of free space is

- (a) Farad
- (b) Weber
- (c) $C^2N^{-1} m^{-2}$
- (d) $C^2N^{-1} m^{-2}$

▼ **Answer**

Answer: c

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