

Name:		Roll No.		Subject	Physics
Test Type	MSQs, Short & Long Questions	Class	12 th	Date	
Chapter	12 Start to before Electron Volt	Unit	12	Time	

Q. No. 1 Tick the best option

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- Relative permittivity for Water is:
(a) 16 (b) 2.1 (c) 1.0006 (d) 78.5
- The Value of Coulomb's constant (K) in SI units is:
(a) $9 \times 10^9 \text{ N}^{-1}\text{m}^2\text{C}^{-2}$ (b) $9 \times 10^{-9} \text{ Nm}^2\text{C}^{-2}$ (c) $9 \times 10^9 \text{ Nm}^{-2}\text{C}^2$ (d) $9 \times 10^9 \text{ Nm}^2\text{C}^{-2}$
- The magnitude of force of a 400 N/C electric field on a 0.02C point charge is:
(a) 8 N (b) $8 \times 10^{-3} \text{ N}$ (c) $8 \times 10^{-5} \text{ N}$ (d) 0.08 N
- If force between point charges of 10 μC and 40 μC is 9000 N, then distance between them is:
(a) 2 cm (b) 20 cm (c) 20 m (d) 400 cm
- The equation $\oint \vec{E} \cdot d\vec{A}$ is only applicable for surface.
(a) Curved (b) Closed (c) Spherical (d) Flat
- The electrostatic force of repulsion between two electrons at a distance 1m is:
(a) $2.3 \times 10^{-24} \text{ N}$ (b) $2.3 \times 10^{-26} \text{ N}$ (c) $2.3 \times 10^{-28} \text{ N}$ (d) $2.3 \times 10^{-30} \text{ N}$
- Which of the following is the SI unit of electric flux?
(a) $\text{N}^2 \text{ m}^2 \text{ C}^{-1}$ (b) $\text{N}^2 \text{ m C}^{-1}$ (c) $\text{N m}^2 \text{ C}^{-2}$ (d) $\text{N m}^2 \text{ C}^{-1}$
- The force on an electron in a field of $1 \times 10^8 \text{ NC}^{-1}$ will be:
(a) $1.6 \times 10^{-8} \text{ N}$ (b) $1.6 \times 10^{-11} \text{ N}$ (c) $1.6 \times 10^{-19} \text{ N}$ (d) $1.6 \times 10^{-27} \text{ N}$
- If charge q_1 apply a 100N force on the other charge q_2 , then the charge q_2 applied a force on charge q_1 is:
(a) 50 N (b) 100 N (c) 200 N (d) Zero N
- The surface charge density is defined as:
(a) $\sigma = qA$ (b) $\sigma = A/q$ (c) $\sigma = q/A$ (d) $\sigma = q/\epsilon_0$
- If the separation between two oppositely charged parallel plates is halved, the electric field:
(a) Half (b) Doubled (c) One fourth (d) Not effected
- According to Gauss's law the flux through a closed surface is proportional to
(a) $1/Q$ (b) Q^2 (c) Q (d) $\sqrt{Q}$
- The work done in bringing a unit positive charge from infinity to that point in an electric field is called:
(a) Potential (b) potential difference (c) absolute potential (d) All
- The potential at a point, where a charge of $1 \times 10^{-3} \text{ C}$ is placed at a distance of 10m is:
(a) 1.0 mV (b) 1.6 kV (c) 900 kV (d) 9000 kV
- Electric intensity inside the hollow sphere is:
(a) $\frac{\sigma}{\epsilon_0}$ (b) $\frac{\sigma}{2\epsilon_0}$ (c) $\frac{1}{\epsilon_0}$ (d) zero
- If the surface charge density of an infinite sheet is doubled, the electric field:
(a) Remains same (b) Halved (c) Doubled (d) One fourth
- One electron volt is equal to
(a) $1.6 \times 10^{19} \text{ J}$ (b) $1.6 \times 10^{-19} \text{ J}$ (c) $1.6 \times 10^{19} \text{ C}$ (d) $1.6 \times 10^{-19} \text{ C}$
- The absolute potential at a point distant 20cm from a charge of 2 μC is:
(a) $9 \times 10^3 \text{ V}$ (b) $9 \times 10^4 \text{ V}$ (c) $9 \times 10^2 \text{ V}$ (d) $9 \times 10^5 \text{ V}$
- If the distance between two charge bodies is halved, the force between them becomes:
(a) Half (b) Four times (c) One fourth (d) Double
- Relative permittivity ϵ_r for Air is:
(a) 1 (b) 1.0006 (c) 2.1 (d) 78.5

Q. No. 2 Write the short answer of these following questions

6 x 2 = 12

- Define electric flux, its formula and factors upon which the electric flux depends.
- Write down the four properties of electric lines of force.
- State Coulomb's Law and its mathematical forms.
- Define Gaussian surface. Write the relation for electric flux due to a charge enclosed.
- Show that the interior of a hollow charged metal sphere is a field free region.
- At what situation; (a) $E = 0$ but $V \neq 0$ (b) $E \neq 0$ but $V = 0$

Q. No. 3 Long question

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- State Gauss's law. Derive an expression for electric flux through a surface enclosing a charge.