

# 23 Lecture - PHY101

## Important Mcqs

What is the electric field intensity at a distance of 2 meters from a point charge of  $5 \mu\text{C}$ ?

- a)  $9 \times 10^9 \text{ N/C}$
- b)  $1.125 \times 10^{10} \text{ N/C}$
- c)  $2.25 \times 10^{10} \text{ N/C}$
- d)  $4.5 \times 10^{10} \text{ N/C}$

Answer: b)  $1.125 \times 10^{10} \text{ N/C}$

Which law of electrostatics relates the electric field to the charge density?

- a) Coulomb's Law
- b) Gauss's Law
- c) Ohm's Law
- d) Ampere's Law

Answer: b) Gauss's Law

What is the electric potential at a point P, located at a distance of 2 meters from a point charge of  $10 \mu\text{C}$ ?

- a)  $1.125 \times 10^{10} \text{ V}$
- b)  $9 \times 10^9 \text{ V}$
- c)  $4.5 \times 10^{10} \text{ V}$
- d)  $2.25 \times 10^{10} \text{ V}$

Answer: d)  $2.25 \times 10^{10} \text{ V}$

What is the potential difference between two points A and B, located at a distance of 5 cm and 10 cm respectively from a point charge of  $2 \mu\text{C}$ ?

- a)  $1.8 \times 10^9 \text{ V}$
- b)  $2.2 \times 10^9 \text{ V}$
- c)  $3.6 \times 10^9 \text{ V}$
- d)  $4.4 \times 10^9 \text{ V}$

Answer: c)  $3.6 \times 10^9 \text{ V}$

What is the work done in moving a charge of  $5 \mu\text{C}$  from a point A to a point B, located at a distance of 10 cm and 20 cm respectively from a point charge of  $10 \mu\text{C}$ ?

- a)  $-4.5 \times 10^{-6} \text{ J}$
- b)  $4.5 \times 10^{-6} \text{ J}$
- c)  $9 \times 10^{-6} \text{ J}$
- d)  $-9 \times 10^{-6} \text{ J}$

Answer: a)  $-4.5 \times 10^{-6} \text{ J}$

What is the electric field intensity at the center of a circular ring of radius R and charge Q?

- a)  $kQ/R^2$
- b)  $2kQ/R^2$
- c)  $3kQ/R^2$
- d)  $4kQ/R^2$

Answer: a)  $kQ/R^2$

What is the electric field intensity at a point on the axis of a uniformly charged disc of radius R and charge Q, at a distance of x from the center of the disc?

- a)  $kQx/2(R^2 + x^2)^{3/2}$
- b)  $kQx/(R^2 + x^2)^{3/2}$

c)  $kQ/2(R^2 + x^2)^{3/2}$

d)  $kQ/(R^2 + x^2)^{3/2}$

Answer: b)  $kQx/(R^2 + x^2)^{3/2}$

What is the electric potential at the center of a uniformly charged sphere of radius  $R$  and charge  $Q$ ?

a)  $kQ/R$

b)  $kQ/2R$

c)  $kQ/3R$

d)  $kQ/4R$

Answer: d)  $kQ/4R$

What is the work done in moving a charge of  $10 \mu\text{C}$  from a point A to a point B, located at a distance of 5 cm and 10 cm respectively from a uniformly charged sphere