## 23 Lecture - PHY101

## Important Mcqs

What is the electric field intensity at a distance of 2 meters from a point charge of $5 \mu \mathrm{C}$ ?
a) $9 \times 10^{\wedge} 9 \mathrm{~N} / \mathrm{C}$
b) $1.125 \times 10^{\wedge} 10 \mathrm{~N} / \mathrm{C}$
c) $2.25 \times 10^{\wedge} 10 \mathrm{~N} / \mathrm{C}$
d) $4.5 \times 10^{\wedge} 10 \mathrm{~N} / \mathrm{C}$

Answer: b) $1.125 \times 10^{\wedge} 10 \mathrm{~N} / \mathrm{C}$

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 $10 \mu \mathrm{C}$ ?
a) $1.125 \times 10^{\wedge} 10 \mathrm{~V}$
b) $9 \times 10^{\wedge} 9 \mathrm{~V}$
c) $4.5 \times 10^{\wedge} 10 \mathrm{~V}$
d) $2.25 \times 10^{\wedge} 10 \mathrm{~V}$

Answer: d) $2.25 \times 10^{\wedge} 10 \mathrm{~V}$

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 $2 \mu \mathrm{C}$ ?
a) $1.8 \times 10^{\wedge} 9 \mathrm{~V}$
b) $2.2 \times 10^{\wedge} 9 \mathrm{~V}$
c) $3.6 \times 10^{\wedge} 9 \mathrm{~V}$
d) $4.4 \times 10^{\wedge} 9 \mathrm{~V}$

Answer: c) $3.6 \times 10^{\wedge} 9 \mathrm{~V}$

What is the work done in moving a charge of $5 \mu \mathrm{C}$ from a point A to a point B , located at a distance of 10 cm and 20 cm respectively from a point charge of $10 \mu \mathrm{C}$ ?
a) $-4.5 \times 10^{\wedge}-6 \mathrm{~J}$
b) $4.5 \times 10^{\wedge}-6 \mathrm{~J}$
c) $9 \times 10^{\wedge}-6 \mathrm{~J}$
d) $-9 \times 10^{\wedge}-6 \mathrm{~J}$

Answer: a) $-4.5 \times 10^{\wedge}-6 \mathrm{~J}$

What is the electric field intensity at the center of a circular ring of radius R and charge Q ?
a) $k Q / R^{\wedge} 2$
b) $2 \mathrm{kQ} / \mathrm{R}^{\wedge} 2$
c) $3 \mathrm{kQ} / \mathrm{R}^{\wedge} 2$
d) $4 \mathrm{kQ} / \mathrm{R}^{\wedge} 2$

Answer: a) $k Q / R^{\wedge} 2$

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) $k Q x / 2\left(R^{\wedge} 2+x^{\wedge} 2\right)^{\wedge}(3 / 2)$
b) $k Q x /\left(R^{\wedge} 2+x^{\wedge} 2\right)^{\wedge}(3 / 2)$
c) $k Q / 2\left(R^{\wedge} 2+x^{\wedge} 2\right)^{\wedge}(3 / 2)$
d) $k Q /\left(R^{\wedge} 2+x^{\wedge} 2\right)^{\wedge}(3 / 2)$

Answer: b) $k Q x /\left(R^{\wedge} 2+x^{\wedge} 2\right)^{\wedge}(3 / 2)$

What is the electric potential at the center of a uniformly charged sphere of radius R and charge Q ?
a) $k Q / R$
b) $k Q / 2 R$
c) $k Q / 3 R$
d) $k Q / 4 R$

Answer: d) kQ/4R

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

