

# 26 Lecture - PHY101

## Important Subjective

Define electric potential.

Answer: Electric potential at a point in an electric field is defined as the amount of work done in bringing a unit positive charge from infinity to that point.

What is the unit of electric potential?

Answer: The unit of electric potential is Volt (V).

What is the difference between electric potential and electric potential energy?

Answer: Electric potential is the electric potential energy per unit charge, whereas electric potential energy is the energy required to move a charge from one point to another against an electric field.

What is equipotential surface?

Answer: An equipotential surface is a surface in an electric field where all points have the same electric potential.

Why is electric potential a scalar quantity?

Answer: Electric potential is a scalar quantity because it has only magnitude and no direction.

What is the relation between electric potential and electric field?

Answer: The electric field at a point is the negative of the gradient of electric potential at that point.

What is the work done in moving a charge from a lower potential to a higher potential?

Answer: Work is done by an external agent in moving a charge from a lower potential to a higher potential.

What is the work done in moving a charge on an equipotential surface?

Answer: No work is done in moving a charge on an equipotential surface because the electric potential at all points on the surface is the same.

What is the electric potential due to a point charge?

Answer: The electric potential due to a point charge at a point in space is given by  $V = kq/r$ , where  $k$  is the Coulomb's constant,  $q$  is the charge, and  $r$  is the distance from the point charge.

What is the electric potential due to a dipole?

Answer: The electric potential due to an electric dipole at a point in space is given by  $V = k(p/r^2)\cos\theta$ , where  $k$  is the Coulomb's constant,  $p$  is the dipole moment,  $r$  is the distance from the dipole, and  $\theta$  is the angle between the dipole moment and the line joining the dipole to the point.