Gauss Divergence Theorm:-

It States that, the volume integral of the divergence of vector field A taken over any volume V bounded by a closed surface S is equal to surface integral of A taken over the surface S.

Mathematically

$$\iiint_V \text{div} A \, dV = \iint_S A \cdot ds$$

Stokes Theorm:-

It state that the surface integral of a curl of a vector field A taken over any surfaces S is equal to the line integral of A around a closed curve.

$$\iint_S (\text{curl} A) \, ds = \oint A \cdot dl$$

OR

$$\iint_S (\nabla \times A) \, ds = \oint A \cdot dl.$$

Physical significance & derivation of Maxwell's Equations

To derive Maxwell Eqn we need to study following terms -

1) Gauss law of Electrostatics:-

Gauss law states that Electric flux through any closed surface is Equal to net charge Enclosed by the surface divided by Permitivity of vaccum.

$$\phi = \frac{Q}{\epsilon_0} \quad \text{or} \quad \frac{q}{\epsilon_0}$$

Gauss law of Electrostatics (Integral Form)

The number of lines of force passing through a small area element ds is given by.

$$d\phi = E \cdot ds = E ds \cos\theta$$

This is known as Electric Flux of the field over the elementary surface ds.

For a closed surface Flux of Field is given by.

$$\phi = \oint\oint E \cdot ds$$

In Integral form

Total outward flux of Electric Field over a closed surface is equal to $\frac{1}{\epsilon_0}$ times the total Net Charge contained in a volume enclosed by the surface

$$\boxed{\oint\oint E \cdot ds = q/\epsilon_0}$$

E - Electric Field Intensity ds - Surface Element.