

## 1 Coulomb's Law

*The force between two point charges  $Q_1$  and  $Q_2$  is directly proportional to the product of the two charges and inversely proportional to the square of their distance apart.*

$$F = \frac{1}{4\pi\epsilon} \frac{Q_1 Q_2}{d^2} \quad (1)$$

Where  $F$  is the **electrostatic force**,  $\epsilon$  is the **absolute permittivity** ( $\text{F m}^{-1}$ ) of the medium,  $Q_1$  and  $Q_2$  are two different point **charges** (C) and  $d$  the **distance** (m) between them.

## 2 Gain in K.E. = Loss in P.E.

$$\Delta \text{P.E.} = qV = \Delta \text{K.E.} \quad (\text{J})$$

Where  $q$  is the particle's charge and  $V$  the **potential difference** (V) between two charged plates.

## 3 Electric field strength between plates

### 3.1 Equation:

$$E = \frac{V}{d} \quad , \quad V = V_1 - V_2 \quad (\text{N C}^{-1})$$

### 3.2 Diagram:

