

Dr POUJITHA CINDRE

1916606030165 MECHANICAL CALCULATIONS

Question

- 1) Using the concept of newton's second law motion describe

Answer

Newton's second law of motion states that the acceleration of an object is produced by a net force is directly proportional to the magnitude of the net force and inversely proportional to the mass of the object

Therefore on entering the field, there is a vertical downward force acting on the electron. This is because electric force acts in the opposite direction as the electric field and the electric force acts in the opposite direction as the electric field and the electric field is directed upward.

The magnitude of the force is given by $F = Eq$

The magnitude of the force is the charge of the electron

$F = ma$ Since $m = \text{mass}$ $f = \text{force}$

$a = \text{acceleration}$

$$a = \frac{F}{m} = \frac{Eq}{m}$$

$$\Rightarrow a = \frac{Eq}{m}$$

The direction of f is downward, just like the force f is directed because to describe 2nd law. Force is directly proportional to acceleration.

2 Electric field is the region around a charge in which another charge can experience electric force. If the test charge is positive the direction of electric field and electric force are the same. When the test charge is negative the direction of opposite electric field is not a single vector quantities associated with each point in space, this is called the vector field.

Therefore in an electric field exists within a conductor the field exerts a force on everything in the conductor,

$$\vec{E} = \frac{\vec{F}}{q}$$

$$\vec{E} = \text{electric field}$$

$$F = F_e$$

$$q = \text{Charge}$$