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ANSWER:

1. Newton's second law states that the vector sum of the forces F acting on an object is equal to the mass M of that object multiplied by the acceleration A of the object:

   F=ma.

   When an electron enters the field, there is a vertical downward force acting on it. This is because electric force acts in the opposite direction to an electric field and the electric field always points upward.

   The magnitude of the force is given by F=Gq.

   Where:

   G=electric field strength

   q=charge of the electron

   since no force acts horizontally, the magnitude of the acceleration is gotten by using newton's second law F=ma

   where:

   m=mass

   f=force

   a=acceleration

   a=F/m=G(q/m)=Gq/m

   The direction of 'a' is downward just like the way force F is directed. This obeys Newton's second law, force is directly proportional to acceleration

2. ELECTRIC FIELD

   An electric field is a region around a charge in which another charge can experience electric force. The direction of electric field is radially outward from a positive charge and radially in towards a negative point. Electric field is not a single vector quantity but an infinite set of vector quantities, associated with each point in space, hence it is a vector fluid

Electric field is represented math as E=f/q

Where:

E=electric field

F= force

q=charge

MAGNETIC FIELD

A magnetic field is defined by the force that a charged particle experiences moving in this field. The magnitude of this force is proportional to the amount charge q, the speed of the charged particle v, and the magnitude of the applied magnetic field.

Mathematically express as: $F=qvB\sin\theta$

Where :

F=magnetic force

q=charge of the particle

B=magnetic field strength

V=velocity at which charge is moving with

ELECTRIC CURRENT

Electric current is a stream of charged particles such as electrons or irons moving through an

electric conductor or space. It is measured as the net rate flow of electric charge past a region. The moving particles are called charge carriers, which may be of several types of particles depending on the conductor.