UMEADOTA MAKUOCHUKWU ANTHONY

COMPUTER ENGINEERING

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ENG 221

QUESTION 1.

The electron is negatively charged, so it is acted upon by a force directed opposite to the electric field i.e force acted in upward direction.

Therefore, the acceleration is in upward direction

F=ma (by newtons second law of motion)

The electric field is umiform, so the magnitude and direction of the field are constant i.e force is also constant.

Therefore, acceleration's magnitude is constant and acceleration's direction is upward and constant.

QUESTION 2.

ELECTRIC FIELD WITH RESPECT TO CHARGES .

The magnitude of the electric field around an electric charge, considered as source of the electric field, depends on how the charge is distributed in space. For a charge concentrated nearly at a point, the electric field is directly proportional to the amount of charge; it is inversely proportional to the square of the distance radially away from the centre of the source charge and depends also upon the nature of the medium. The presence of a material medium always diminishes the electric field below the value it has in a vacuum.

MAGNETIC FIELD WITH RESPECT TO CHARGES .

When a moving charge is introduced in a magnetic field, the field exerts a force F on the charge.This is called the Lorentz force. The magnitude of this force is given by the formula qVB sine theta, where q is the magnitude of the charge, V is the velocity, B is the magnitude of the magnetic field, and theta is the angle between the velocity and the magnetic field.

ELECTRIC CURRENT WITH RESPECT TO CHARGES .

A common unit of electric current is the ampere, which is defined as a flow of one coulomb of charge per second, or 6.2 × 1018 electrons per second. The centimetre–gram–second units of current is the electrostatic unit of charge (esu) per second. One ampere equals 3 × 109 esu per second.