

AFINNI JOHN MHYA

19/ENG02/028

Computer Engineering

Basic Electrical Engineering

ENG 221

Assignment

Questions

- 1 Using the concept of Newton's second law of motion, describe the magnitude and direction of the acceleration of an electron being shot horizontally into a closed space with a uniform field being directed upward.
- 2 a. Describe electric field, magnetic field and electric current with respect to charges.

Answers

- 1 Newton's second law of motion states that when a constant force acts on a massive body, it causes it to accelerate, i.e. to change its velocity, at a constant rate. In the simplest case, a force applied to an object at rest causes it to accelerate in the direction of the force.

An electron has a lot of forces acting on it and these forces are being shot into the field. Due to the multiple forces acting on the electron, its resultant direction and magnitude of acceleration would be a function of both forces acting on it.

- 2 Electric field is defined mathematically as a vector field that associates to each point in space the force per unit of charge exerted on an infinitesimal positive test charge at rest at that point.

Magnetic field is a vector field caused by the movement of electrical charges where a magnetic force is experienced.

Electric current is a stream of charged particles, such as electrons or ions, moving through an electrical conductor or space.