Question 23

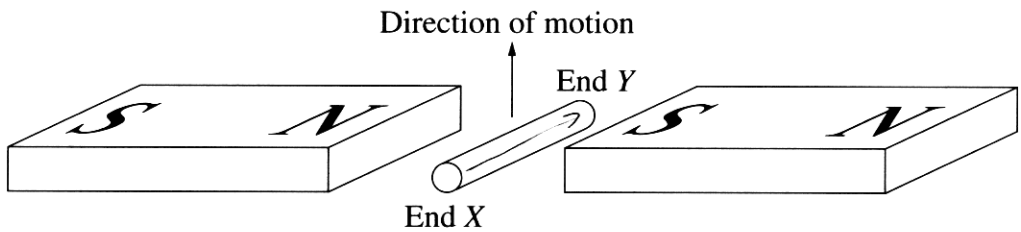
Marks

**Question 23** (7 marks)

(a) State Lenz's law. **1**

EMF = q.VB

(b) When the metal rod is moved upwards through the magnetic field as shown in the diagram, an emf is induced between the two ends.




(i) Which end of the rod is negative? **1**

End Y

(ii) Explain how the emf is produced in the rod. **3**

EMF is produced when the rod moves through the magnetic field. The magnetic field induces current whilst the rod moves through it. This occurs as the electron move through the rod to one end

(c) Explain how the principle of induction can be used to heat a conductor. **2**

As the electron move they colide with ~~atom~~ other sub-atomic particle these collision create heat. Therefor by moving a conductor through a magnetic field & inducing current, ~~the~~ the conductor will heat up.