

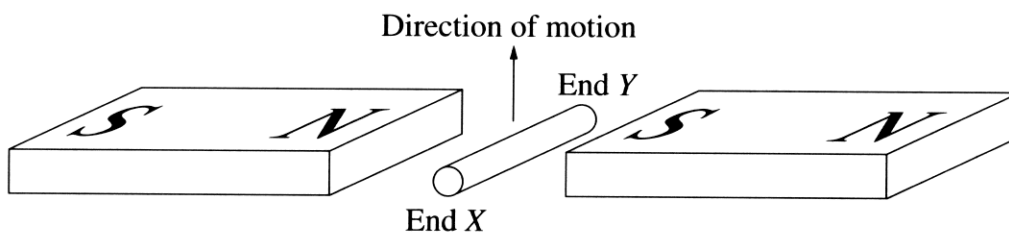
Question 23 (7 marks)

(a) State Lenz's law.

1

An object which exerts a force experiences an equal or opposite force.

(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 X

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

3

Emf is produced in the rods by the magnetic current sweeping across the rods plane. The particles charge help to enable the power of the emf.

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

2

Induction can be used to heat up a conductor by charging the particles so they can move freely. Example: Inducing a rod would involve rubbing it with a cloth. This charges the particles in the rod.