

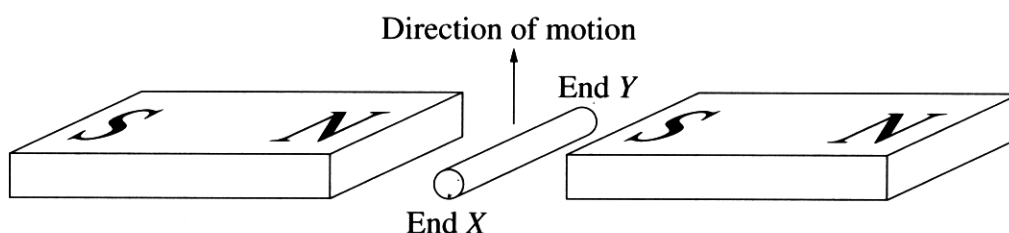
Question 23 (7 marks)

(a) State Lenz's law.

1

The consequence of the 'conservation of energy' comes on an emf in a magnetic field to repel it.

(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

The magnetic fields of the two magnets induces an emf into the metal rod which acts as a magnet that repels these two other magnets.

The metal conductor allows the magnetic field flux of an emf to be induced.

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

2

If an induction can be induced from a ^{electro} magnetic field into a metal (eg. suspan), then the metal eddy currents can occur inside the metal and eventually that energy turns to heat.