

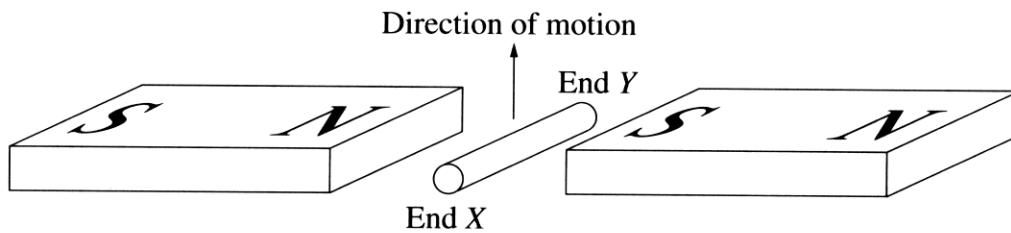
Question 23 (7 marks)

(a) State Lenz's law.

1

The EMF ~~produced~~ <sup>induced</sup> is proportional to the magnetic flux produced.

(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.



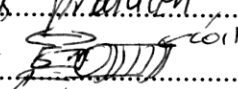
(i) Which end of the rod is negative?

1

X

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

3

When the rod is moved up and down it ~~creates~~ produces a current / the faster it is moved the more emf is produced, if it is kept still no emf is produced, similar to Faraday's experiment .

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

2

When inducing an emf, eddy currents are formed. and in a conductor, ~~they~~ eddy currents can easily heat it up.