

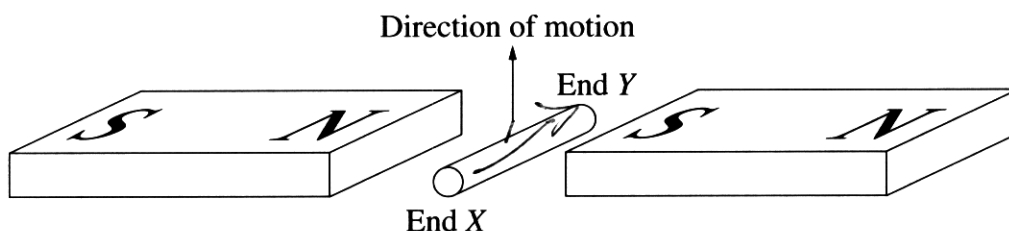
Question 23 (7 marks)

- (a) State Lenz's law.

1

The direction of the induced current will oppose the motion that induced it.
~~energy conservation.~~

- (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

Y end

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

3

Rod is conductor. It cuts through the magnetic field, according to Faraday, and emf is produced via electromagnetic induction. - a conductor with relative motion to a magnetic field, an emf is produced.

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

2

As conductor moves a current is formed. The current cause the rod to heat because of resistance.