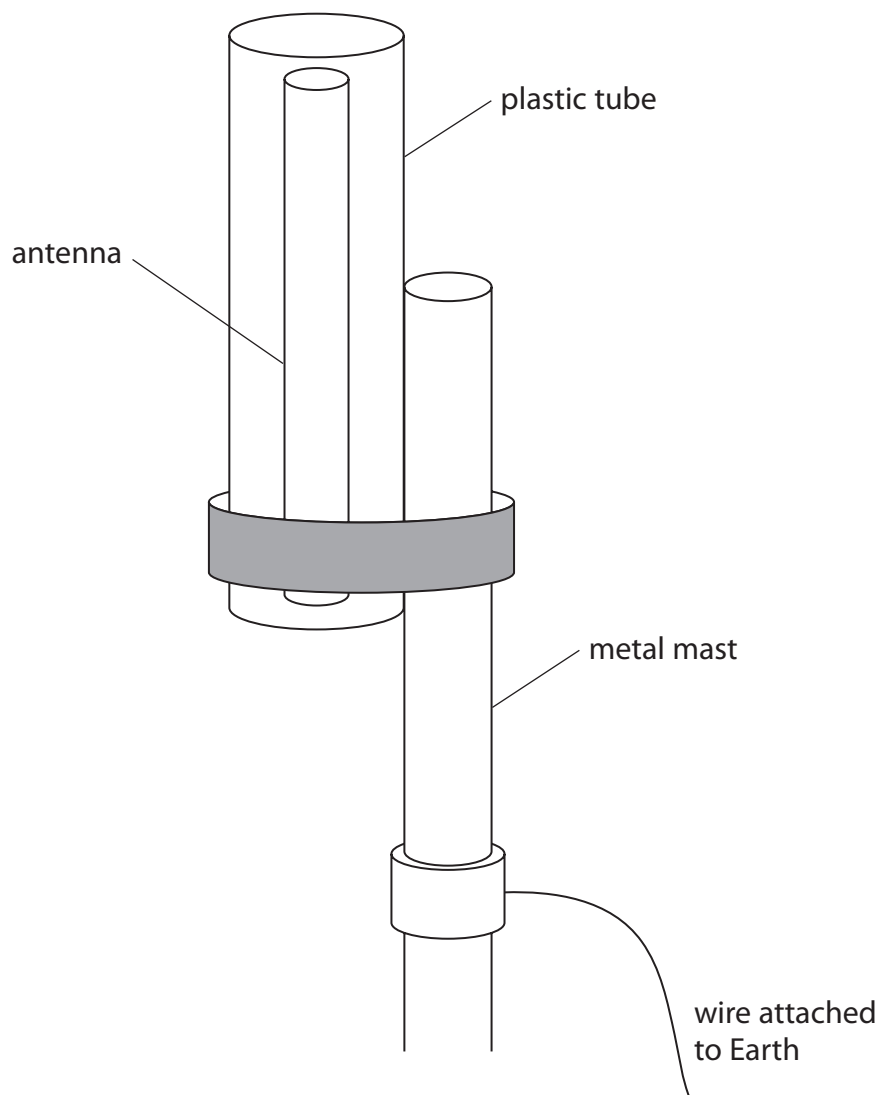


3 The diagram shows part of a radio antenna.

The plastic tube protects the radio antenna from bad weather.

Dust particles carried by the wind rub against the plastic tube.

After some time, the dust particles cause the tube to become positively charged.



(a) State the property of plastic that allows it to become electrostatically charged.

(1)

(b) Explain how the plastic tube becomes positively charged.

(2)



- (c) The plastic tube is attached to a metal mast.

This would cause the metal mast to become positively charged.

Explain why there is a wire connecting the metal mast to the Earth.

(3)

- (d) The plastic tube gains a charge of 4.3 mC.

The energy stored on the tube is 3.7 J.

Calculate the voltage between the plastic tube and the metal mast.

(3)

voltage = V

- (e) An engineer is working on the radio antenna.

Describe the hazard to the engineer if there is no earth wire.

(2)

(Total for Question 3 = 11 marks)

