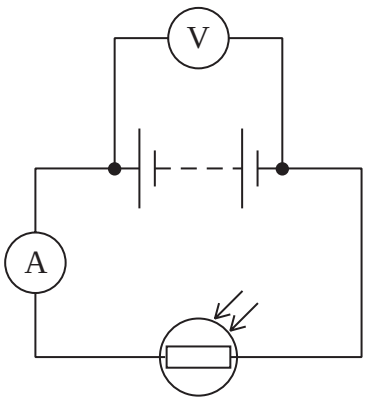
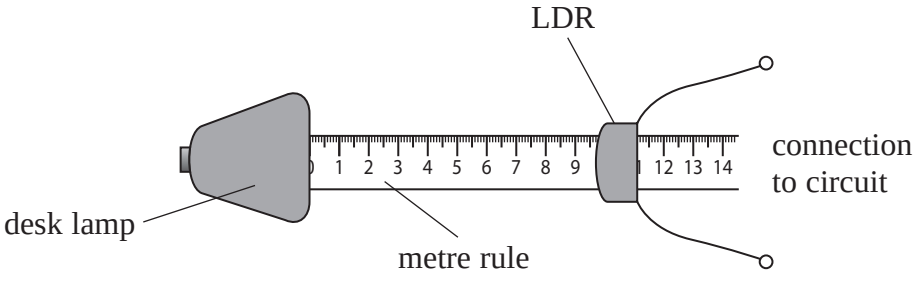
9 A student carried out an experiment with a light dependent resistor (LDR). He connected the LDR in series with an ammeter and a power supply, as shown in the circuit diagram.



The student placed the LDR a known distance from a desk lamp, as shown.



The student noted the reading on the ammeter as he brought the LDR closer to the lamp.

(a) The student planned to vary the intensity of light incident upon the LDR by adjusting the distance *x* between the LDR and the lamp.

He thought that the intensity of light on the LDR would increase uniformly if he decreased *x* by equal intervals. He therefore planned to take ammeter readings as he decreased *x* from 20.0 cm to 10.0 cm in equal intervals.

(i) Criticise the student's plan for data collection.

(3)

(ii) Explain one precaution that the student should take to ensure that results are accurate.

(2)

(b) Explain why the ammeter reading increased as the LDR was brought closer to the lamp. Your answer should include reference to the charge carriers in the LDR.

(3)

(Total for Question 9 = 8 marks)