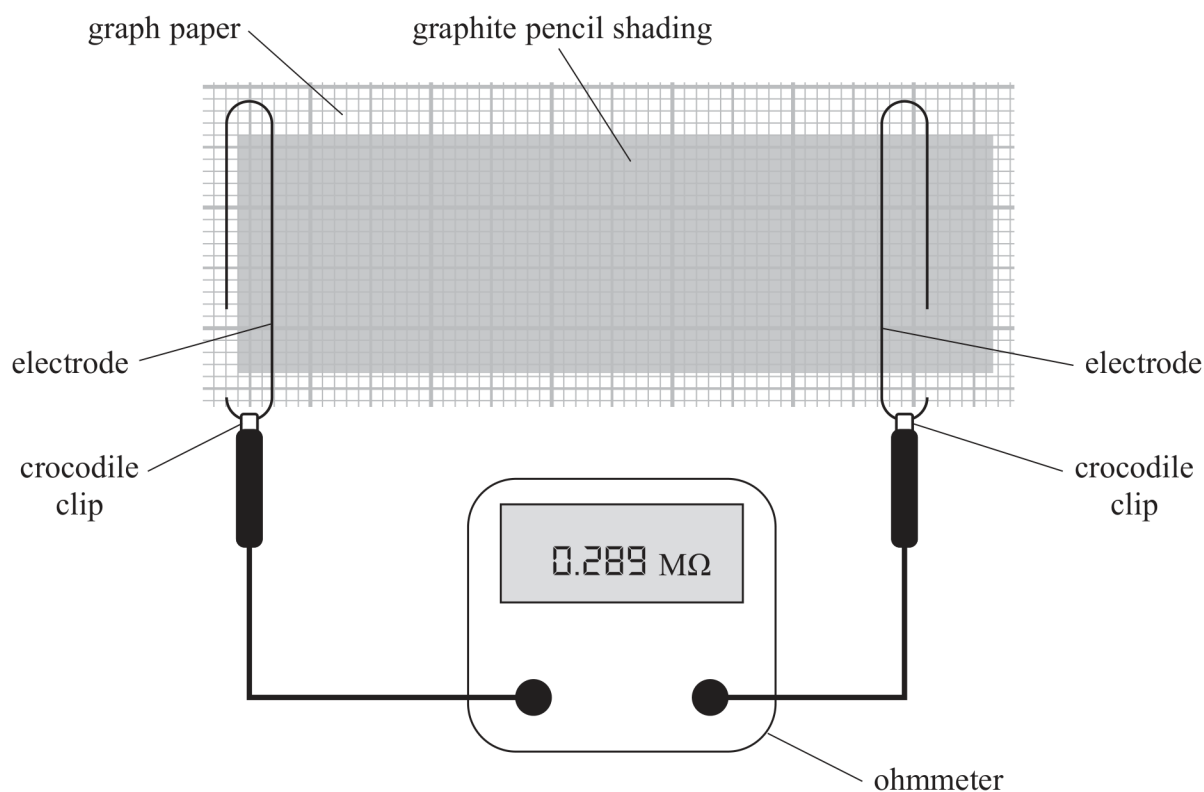


Answer ALL questions.

- 1 A student used a graphite pencil to shade in an area of graph paper. The thickness of the shading was uniform.

She placed electrodes in contact with the graphite pencil shading. She measured the resistance R of the shading between the electrodes using an ohmmeter, as shown.



- (a) (i) State the resolution of the ohmmeter.

(1)

- (ii) Determine the percentage uncertainty in the measurement of R .

(2)

Percentage uncertainty =



(b) The thickness of the graphite pencil shading can be determined from a known value for the resistivity of graphite.

(i) Describe how the student could determine an accurate value for the thickness of the graphite pencil shading. The method should use a suitable graph.

(4)

(ii) Identify a possible source of systematic error in your method.

(1)

(Total for Question 1 = 8 marks)