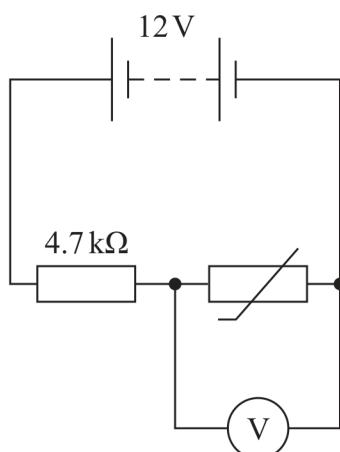


Answer ALL questions.

- 1 A student investigated the behaviour of a thermistor using the circuit shown in the diagram.



She heated the thermistor to 100°C and measured the potential difference V across it. She decreased the temperature θ and recorded further measurements of V and θ until the temperature reached 10°C .

- (a) Describe how the student was able to vary the temperature θ of the thermistor for this investigation.

(2)

- (b) The photograph shows the steady reading of V on the voltmeter when the thermistor was at room temperature.



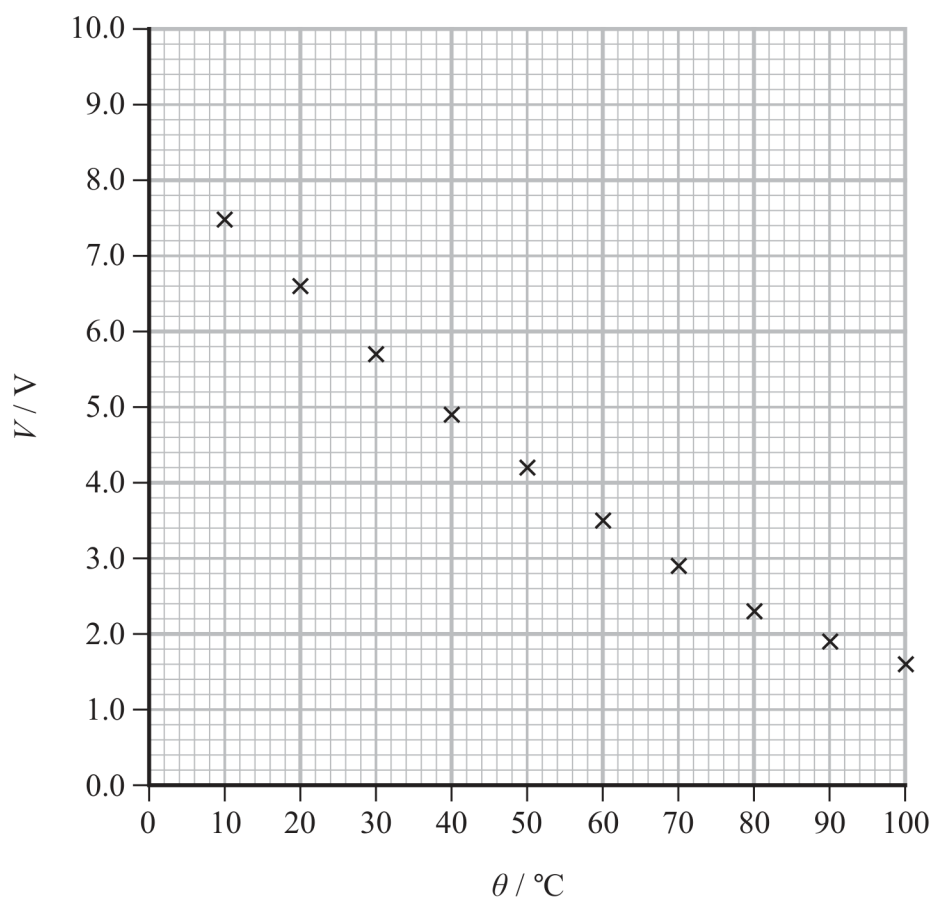
(Source: PAL)

Calculate the percentage uncertainty in the value of V shown.

(2)

Percentage uncertainty =

(c) The student plotted a graph of her measurements of V and θ .



(i) Estimate the value of V for a temperature of 0°C .

(2)

(ii) Calculate the resistance of the thermistor at a temperature of 0°C .

(3)

Resistance =



- (d) The student suggested that V is inversely proportional to temperature measured in kelvin.

Determine whether she is correct.

(2)

(Total for Question 1 = 11 marks)