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Candidate surname

TheMedDude

Other names

**Pearson Edexcel
International
Advanced Level**

Centre Number

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Candidate Number

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Monday 11th October 2021

Morning (Time: 1 hour 30 minutes)

Paper Reference **WPH12/01**

Physics

International Advanced Subsidiary / Advanced Level

Unit 2: Waves and Electricity

You must have:

Scientific calculator, Ruler

Total Marks

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Instructions

- Use **black** ink or ball-point pen.

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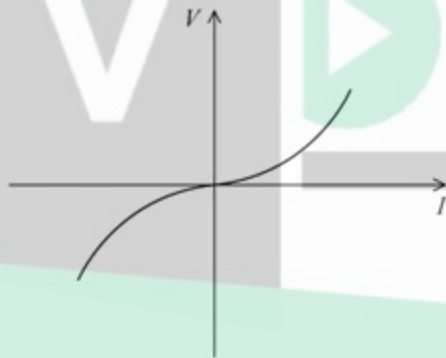
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For questions 1–10, in Section A, select one answer from A to D and put a cross in the box . If you change your mind, put a line through the box and then mark your new answer with a cross .

- 1 The graph shows how potential difference V varies with current I for an electrical component.

I - V GRAPH FOR A THERMISTOR



I - V GRAPH FOR A DIODE

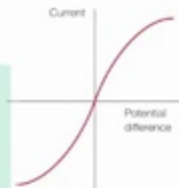
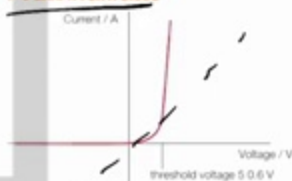


fig C A filament lamp is

Which electrical component is represented by this graph?

- A diode
- B filament lamp
- C ohmic conductor
- D thermistor ~~X~~

NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

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EA





$$n = \frac{I}{qvA}$$

$$ms^{-1} \times m^2 \Rightarrow m^3$$

- 3 The equation $I = nqvA$ relates the current in a sample of a material to the movement of free charge carriers in the sample.

Which of the following is a correct definition of one of the terms in this equation?

- A n represents the number of charge carriers in the sample. per unit r
- B q represents the total charge stored in the sample.
- C v represents the drift velocity of the charge carriers in the sample.
- D A represents the surface area of the sample.

(Total for Question 3 = 1 mark)

The temperature of a thermistor is increased.



DO NOT WRITE

D represents the total charge stored in the sample.

C represents the drift velocity of the charge carriers in the sample.

$$v = \frac{I}{nqA}$$

D represents the surface area of the sample.

cross section

(Total for Question 3 = 1 mark)

4 The temperature of a thermistor is increased.

$\uparrow T_{\text{temp}}$ Up $\downarrow R_{\text{resist}}$ Down

$$\downarrow R = \frac{V}{I} \uparrow$$

Which row in the table identifies the effect of the temperature increase on the number of conduction electrons and the amplitude of lattice vibrations?

$$\uparrow I = \frac{Q}{t} \uparrow$$

	Number of conduction electrons	Amplitude of lattice vibrations
<input type="checkbox"/> A	increases	increases
<input type="checkbox"/> B	decreases	increases
<input type="checkbox"/> C	increases	stays the same
<input type="checkbox"/> D	decreases	stays the same

(Total for Question 4 = 1 mark)

5 The unit of resistance is the ohm.

Which of the following is equivalent to the ohm?

WRITE IN THIS AREA



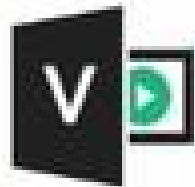
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