FREE REVISION PACK

Potential Dividers

Pearson Edexcel International Advanced Level Physics · Unit 2 (WPH12) · Specification points 74–76

Easy | Medium | Multiple choice · past-paper questions

6	6	≈ 10 min
QUESTIONS	TOTAL MARKS	SUGGESTED TIME*

Contents

Q	LEVEL	FOCUS	SOURCE	MARKS
1	Easy	p.d. along a uniform wire	Edexcel IAL January 2024 · Unit 2 · Q6	1 mark
2	Easy	Thermistor and fixed resistor as the temperature rises	Edexcel IAL October 2022 · Unit 2 · Q3	1 mark
3	Easy	p.d. across one resistor in a potential divider	Edexcel IAL January 2025 · Unit 2 · Q6	1 mark
4	Medium	p.d. across a resistor in a parallel pair	Edexcel IAL June 2024 · Unit 2 · Q2	1 mark
5	Medium	LDR in brighter light: what does not happen	Edexcel IAL January 2022 · Unit 2 · Q10	1 mark
6	Medium	Voltmeter between two potential dividers	Edexcel IAL June 2022 · Unit 2 · Q8	1 mark

Key ideas to have ready

- The p.d. divides in proportion to resistance: $V_{out} = V_{in} \times R_2/(R_1 + R_2)$.
- Components in parallel have the same p.d.
- Sensor circuits: when a thermistor's or LDR's resistance falls, its share of the p.d. falls.
- Along a uniform wire carrying a current, the p.d. is proportional to length.

How to use this pack

1. The questions are grouped into levels (Easy and Medium). Work through them in order, and check your answers at the end of each level before moving on.
2. Every question is multiple choice with one correct answer. Write down your working anyway; that is how you find mistakes.
3. The separate mark scheme uses the same numbers and explains every answer.

Levels are based on how students did in Pearson's examiner reports where that information exists, plus our own difficulty rating. *About 1.5 minutes per question.

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Easy

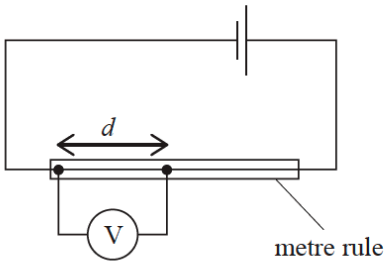
Definitions and one-step ideas. Most students get these right.

Questions 1–3

Choose **one** answer for each question and put a cross in the box next to it.

Edexcel IAL January 2024 · Unit 2 · Q6

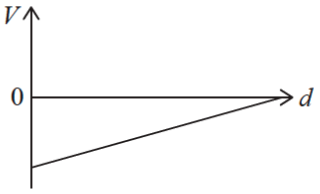
1 A uniform wire is attached to a metre rule. The wire is connected in a circuit as shown.



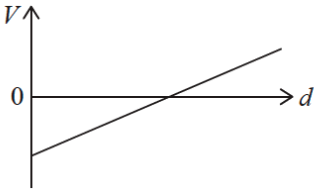
The distance d between the connections to the voltmeter is increased. The reading V on the voltmeter changes.

Which graph shows the relationship between V and d?

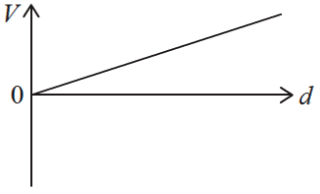
☒ **A**



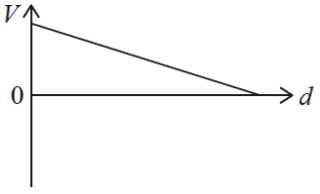
☒ **B**



☒ **C**

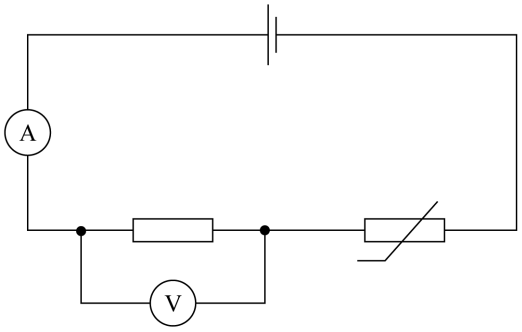


☒ **D**



Edexcel IAL October 2022 · Unit 2 · Q3

2 A negative temperature coefficient thermistor and a fixed resistor are connected in a circuit, as shown.



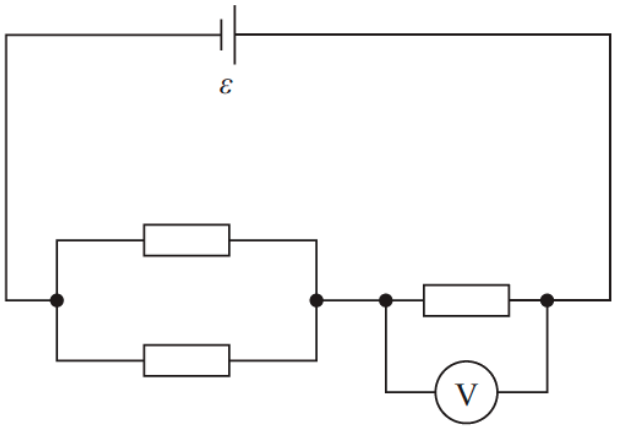
The temperature of the thermistor increases.

Which row of the table shows the changes to the ammeter and voltmeter readings as the temperature increases?

		Ammeter reading	Voltmeter reading
☐	**A**	decreases	decreases
☐	**B**	decreases	increases
☐	**C**	increases	decreases
☐	**D**	increases	increases

Edexcel IAL January 2025 · Unit 2 · Q6

3 A student connects three identical resistors in the circuit shown.



The cell has e.m.f. ε and negligible internal resistance.

Which of the following is equal to the reading on the voltmeter?

☒ **A** $\frac{\varepsilon}{2}$

☒ **B** $\frac{\varepsilon}{3}$

☒ **C** $\frac{2\varepsilon}{3}$

☒ **D** $\frac{3\varepsilon}{2}$

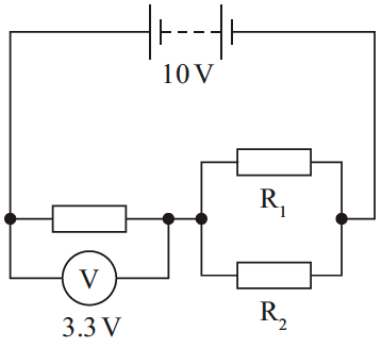
Medium

Two or three steps. Roughly a third to a half of students get these right.

Questions 4–6

Edexcel IAL June 2024 · Unit 2 · Q2

4 The battery in the circuit shown has a negligible internal resistance.
Resistor R_1 and resistor R_2 are identical.



Which of the following expressions gives the potential difference across resistor R_1 in volts?

☒ **A** $\frac{1}{2} \times 3.3$

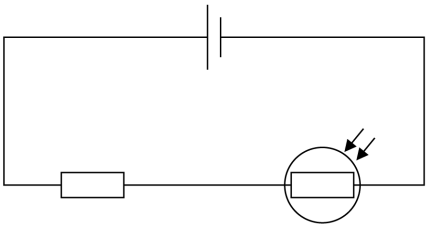
☒ **B** 3.3

☒ **C** $\frac{1}{2} \times (10 - 3.3)$

☒ **D** $10 - 3.3$

Edexcel IAL January 2022 · Unit 2 · Q10

5 A light dependent resistor (LDR) and a fixed resistor are connected in a circuit, as shown.



The intensity of the light incident on the LDR is increased.

Which of the following does **not** take place as the light intensity is increased?

☒ **A** The current in the circuit increases.

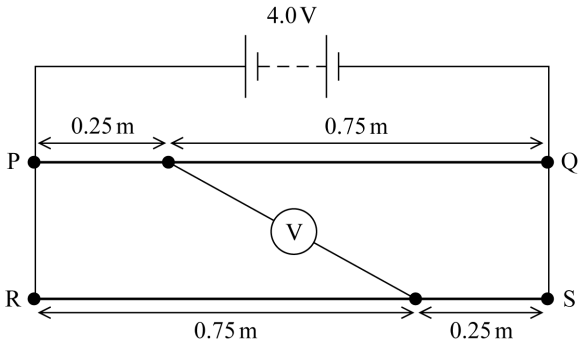
☒ **B** The potential difference across the fixed resistor increases.

☒ **C** The total power dissipated in the circuit decreases.

☒ **D** The resistance of the LDR decreases.

Edexcel IAL June 2022 · Unit 2 · Q8

6 A battery is connected to identical, uniform, nichrome wires, PQ and RS. A voltmeter is connected to the wires as shown. The battery has negligible internal resistance.



Which of the following is the reading on the voltmeter?

- ☒ **A** 1.0 V
- ☒ **B** 2.0 V
- ☒ **C** 3.0 V
- ☒ **D** 4.0 V

End of questions. Check your answers with the matching mark scheme. More free packs and 1-to-1 tuition: **www.getbetteratphysics.co.uk**