FREE REVISION PACK

Thermistors & LDRs

Pearson Edexcel International Advanced Level Physics · Unit 2 (WPH12) · Specification points 79–80

Easy | Medium | Multiple choice · past-paper questions

5	5	≈ 10 min
QUESTIONS	TOTAL MARKS	SUGGESTED TIME*

Contents

Q	LEVEL	FOCUS	SOURCE	MARKS
1	Easy	LDR in brighter light	Edexcel IAL January 2024 · Unit 2 · Q2	1 mark
2	Easy	Cooling a thermistor in a circuit	Edexcel IAL January 2025 · Unit 2 · Q5	1 mark
3	Easy	Heating a thermistor and a metal wire	Edexcel IAL June 2024 · Unit 2 · Q1	1 mark
4	Easy	Conduction electrons in an LDR	Edexcel IAL June 2022 · Unit 2 · Q9	1 mark
5	Medium	Why an NTC thermistor's resistance falls	Edexcel IAL January 2022 · Unit 2 · Q4	1 mark

Key ideas to have ready

- NTC thermistor: resistance falls as temperature rises.
- LDR: resistance falls as light intensity rises.
- Both because more conduction electrons are released (by heat or by photons).
- In a metal the number of conduction electrons stays about the same; more lattice vibration raises R.

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 1–4

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

Edexcel IAL January 2024 · Unit 2 · Q2

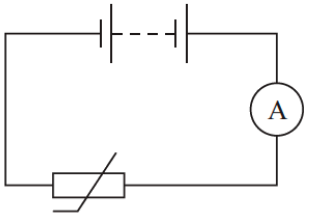
1 There is an increase in the intensity of light incident on a light dependent resistor (LDR). This causes a change in the number of conduction electrons and a change in the resistance of the LDR.

Which row of the table describes these changes?

	Number of conduction electrons	Resistance of LDR
☒ **A**	decreases	decreases
☒ **B**	decreases	increases
☒ **C**	increases	decreases
☒ **D**	increases	increases

Edexcel IAL January 2025 · Unit 2 · Q5

2 The circuit shown includes a thermistor.



Which of the following explains the change in the ammeter reading as the temperature of the thermistor decreases?

☒ **A** The number of conduction electrons decreases so the ammeter reading decreases.

☒ **B** The number of conduction electrons decreases so the ammeter reading increases.

☒ **C** The number of conduction electrons increases so the ammeter reading decreases.

☒ **D** The number of conduction electrons increases so the ammeter reading increases.

Edexcel IAL June 2024 · Unit 2 · Q1

3 The temperature of a thermistor and the temperature of a metal wire are increased.

Which row of the table gives the changes in resistance of the thermistor and the metal wire as the temperature is increased?

	Resistance of thermistor	Resistance of metal wire
☒ **A**	decreases	decreases
☒ **B**	decreases	increases
☒ **C**	increases	decreases
☒ **D**	increases	increases

Edexcel IAL June 2022 · Unit 2 · Q9

4 The number of conduction electrons in a light dependent resistor changes as light intensity increases.

Which of the following best explains how the number of conduction electrons changes?

☒ **A** It decreases because the lattice ions vibrate with a larger amplitude.

☒ **B** It increases because the lattice ions vibrate with a larger amplitude.

☒ **C** It increases because the electrons gain energy from the photons of light.

☒ **D** It decreases because electrons are released due to the photoelectric effect.

Medium Two or three steps. Roughly a third to a half of students get these right. **Question 5**

Edexcel IAL January 2022 · Unit 2 · Q4

5 As temperature increases, the resistance of a negative temperature coefficient thermistor changes.

Which of the following describes the reason for this change?

- ☒ **A** Collisions between electrons and ions occur less frequently.
- ☒ **B** More conduction electrons are released.
- ☒ **C** The ions in the thermistor vibrate less.
- ☒ **D** The ions in the thermistor vibrate more.

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