FREE REVISION PACK

SI Units & Base Units

Pearson Edexcel International Advanced Level Physics · Units 1, 2 and 4 · Working as a Physicist (units)

Easy | Medium | Hard | Multiple choice · past-paper questions

7	7	≈ 10 min
QUESTIONS	TOTAL MARKS	SUGGESTED TIME*

Contents

Q	LEVEL	FOCUS	SOURCE	MARKS
1	Easy	Spotting a scalar from its unit	Edexcel IAL October 2024 · Unit 4 · Q2	1 mark
2	Easy	Recognising an SI base unit	Edexcel IAL June 2024 · Unit 4 · Q1	1 mark
3	Easy	Base units of a moment	Edexcel IAL October 2019 · Unit 1 · Q2	1 mark
4	Medium	Writing the ohm in other units	Edexcel IAL October 2021 · Unit 2 · Q5	1 mark
5	Medium	Base units of the farad	Edexcel IAL October 2020 · Unit 4 · Q4	1 mark
6	Medium	Base units of the tesla	Edexcel IAL October 2022 · Unit 4 · Q6	1 mark
7	Hard	Base units of power	Edexcel IAL January 2021 · Unit 2 · Q1	1 mark

Key ideas to have ready

- The SI **base units**: kg, m, s, A, K and mol. Everything else (N, J, W, C, V, Ω, T, F …) is a **derived** unit.
- To find base units, start from a defining equation and substitute, e.g. $F = ma$ gives $N = kg\ m\ s^{-2}$; $Q = It$ gives $C = A\ s$.
- Useful results: $J = kg\ m^2\ s^{-2}$, $W = kg\ m^2\ s^{-3}$, $V = J\ C^{-1} = kg\ m^2\ s^{-3}\ A^{-1}$.
- Read the question: ‘base units’ means none of N, J, C, V, Ω, T or F may appear in the answer.

How to use this pack

1. The questions are grouped into levels (Easy, Medium and Hard). 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 October 2024 · Unit 4 · Q2

1 Which of the following is **not** the unit of a vector quantity?

- ☒ **A** $\mathrm{kg\,m^{-3}}$
- ☒ **B** $\mathrm{m\,s^{-2}}$
- ☒ **C** $\mathrm{N\,C^{-1}}$
- ☒ **D** $\mathrm{N\,s}$

Edexcel IAL June 2024 · Unit 4 · Q1

2 Which of the following is an SI base unit?

- ☒ **A** ampere
- ☒ **B** coulomb
- ☒ **C** joule
- ☒ **D** tesla

Edexcel IAL October 2019 · Unit 1 · Q2

3 All quantities may be expressed in terms of SI base units.

Which of the following are the base units for the moment of a force?

- ☒ **A** $\mathrm{kg\,m\,s^{-2}}$
- ☒ **B** $\mathrm{kg\,m^2\,s^{-2}}$
- ☒ **C** $\mathrm{kg\,m\,s^{-1}}$
- ☒ **D** $\mathrm{kg\,m^2\,s^{-3}}$

Medium

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

Questions 4–6

Edexcel IAL October 2021 · Unit 2 · Q5

4 The unit of resistance is the ohm.

Which of the following is equivalent to the ohm?

- ☒ **A** $JC^{-2}s$
- ☒ **B** $JC^{2}s^{-1}$
- ☒ **C** $JC^{-1}s^{-1}$
- ☒ **D** JCs

Edexcel IAL October 2020 · Unit 4 · Q4

5 The SI unit of capacitance is the farad.

Which of the following gives the base units of the farad?

- ☒ **A** CV^{-1}
- ☒ **B** $C^{2}J^{-1}$
- ☒ **C** $kg^{-1}m^{-2}A^{2}s^{4}$
- ☒ **D** $kg^{-1}m^{-2}s^{-2}C^{-2}$

Edexcel IAL October 2022 · Unit 4 · Q6

6 The SI unit of magnetic flux density is the tesla.

Which of the following gives the base units of the tesla?

- ☒ **A** $NA^{-1}m^{-1}$
- ☒ **B** $NC^{-1}m^{2}$
- ☒ **C** $kgA^{-1}s^{-2}$
- ☒ **D** $kgC^{-1}s^{-1}$

Hard Several steps, often with a trap built in. Fewer than 3 in 10 students get these right. **Question 7**

Edexcel IAL January 2021 · Unit 2 · Q1

7 The unit of power is the watt.

Which of the following is included in the SI base units for power?

- ☐ **A** newton
- ☐ **B** kilogram
- ☐ **C** joule
- ☐ **D** ampere

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