FREE REVISION PACK

Decay Equations

Pearson Edexcel International Advanced Level Physics · Unit 5 (WPH15) · Specification points 139

Easy | Multiple choice · past-paper questions

4	4	≈ 5 min
QUESTIONS	TOTAL MARKS	SUGGESTED TIME*

Contents

Q	LEVEL	FOCUS	SOURCE	MARKS
1	Easy	β^+ decay of carbon-11	Edexcel IAL October 2025 · Unit 4 · Q7	1 mark
2	Easy	β^+ decay of potassium-38	Edexcel IAL June 2023 · Unit 4 · Q3	1 mark
3	Easy	Finding the parent nucleus of an alpha decay	Edexcel IAL January 2023 · Unit 4 · Q3	1 mark
4	Easy	Products of alpha decay	Edexcel IAL October 2024 · Unit 4 · Q4	1 mark

Key ideas to have ready

- Alpha decay: A falls by 4 and Z by 2.
- β^- decay: Z rises by 1, A unchanged. β^+ decay: Z falls by 1, A unchanged.
- Balance nucleon numbers (top) and proton numbers (bottom) on both sides.
- Neutrons = A − Z.

How to use this pack

1. The questions are grouped into levels (Easy). 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 October 2025 · Unit 4 · Q7

1 A nucleus of $^{11}_{6}C$ decays by releasing a positron e^{+}.

Which row of the table shows the proton number and nucleon number of the nucleus produced?

		Proton number	Nucleon number
☒	**A**	5	11
☒	**B**	5	12
☒	**C**	7	11
☒	**D**	7	12

Edexcel IAL June 2023 · Unit 4 · Q3

2 A nucleus of $^{38}_{19}K$ emits a β^{+} particle.

Which row of the table shows the proton number and nucleon number of the nucleus that is produced?

		Proton number	Nucleon number
☒	**A**	18	39
☒	**B**	18	38
☒	**C**	20	38
☒	**D**	20	37

Edexcel IAL January 2023 · Unit 4 · Q3

3 A nucleus of element X emits an alpha particle to produce the nucleus $^{233}_{91}Y$.

Which of the following is the correct nucleon structure of element X?

☒ **A** 95 protons and 235 neutrons

☒ **B** 93 protons and 144 neutrons

☒ **C** 93 protons and 237 neutrons

☒ **D** 89 protons and 138 neutrons

Edexcel IAL October 2024 · Unit 4 · Q4

4 The isotope $^{222}_{86}Rn$ decays by emitting an alpha particle.

Which of the following shows the nucleons in the isotope produced by this decay?

☒ **A** 134 neutrons, 84 protons

☒ **B** 136 neutrons, 82 protons

☒ **C** 218 neutrons, 84 protons

☒ **D** 220 neutrons, 82 protons

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