Pearson Edexcel

International A level Physics

Our commitment to continuous improvement of assessment accessibility

Pearson Edexcel

We have been continuing to gather feedback from teachers, parents and students about our International Advanced Level Science qualifications. Building on this and our analysis of students' performance in the exams, we have been taking steps to refine our papers to improve the exam experience for all students.

In IAL Physics, our improvements have focused on these key principles for **January 2023**:

- **continuing to use clear, concise language and layout** to help all students access the questions
- **ensuring students understand** which area of specification content is being assessed in some of our longer context questions
- **reviewing the contexts** we use in questions so that these better represent the students taking our qualifications
- where appropriate, **dividing our questions into parts**, so that it will be clearer where marks will be achieved, and some questions can be attempted in smaller parts

No changes have been made to the specification content we are assessing.

The following exemplars show how we will continue to improve accessibility in our Physics assessments in **January 2023**.

IAL Physics Exemplars January 2023

We have now added a sentence within some longer context questions, outlining the Physics content to be considered when answering the question. This will ensure students understand which area of specification content is being assessed.

1 Solar panels use sunlight to generate electrical power to charge a battery.
The photograph shows many solar panels.

(a) Each solar panel has an e.m.f. of 8.5 V when in sunlight and provides a current of 0.48 A.
Each solar panel has an internal resistance of 3.0 Ω.

The solar panels are connected in parallel and used to charge a battery.
When fully charged, the energy stored in the battery is 2.5×10^6 J.

Evaluate whether 15 solar panels, connected in parallel, could fully charge this battery in 12 hours.

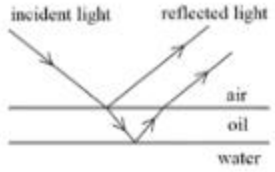
The solar panels are in sunlight and the efficiency of charging the battery is 100%.

You should consider the effect of internal resistance on the terminal potential difference of the solar panels when supplying the charging current.

(4)

2 Oil floats on water. The thin layer of oil reflects light. Coloured patterns may be seen in the reflected light.

The diagram shows light from a white light source being reflected from the top surface and the bottom surface of a layer of oil.



(a) Explain why coloured patterns may be seen in the reflected light.

You should consider the path difference between the two reflected light rays.

(6)

These questions are extracts from longer, Section B questions. The highlighted sentences are examples of how we will outline the Physics content to be considered or referred to, when answering the question. They will be added, where appropriate, within our longer, context questions.

IAL Physics Exemplars January 2023

Where appropriate, our Physics exam papers will include questions divided into parts. It will be clearer where marks can be achieved, and some questions can be attempted in smaller pieces.

By adding the part (a) to this question, it gives students help to start the calculation and gain two marks. This answer can then be used in part (b) to continue the calculation. Appropriate credit will always be given within part (b) if the answer used from part (a) was incorrect

1 Polonium-210 is a radioactive isotope with a half-life of 138 days.
Polonium-210 decays to produce a stable isotope of lead.
During the decay, polonium-210 emits alpha particles of energy 5.3 MeV.

A sample of plutonium-210 initially contains 2.85×10^{15} atoms of polonium.

Calculate the rate of energy emission from this sample 28 days after the initial sample was prepared.

1 day = 86400 s

(6)

1 Polonium-210 is a radioactive isotope with a half-life of 138 days.
Polonium-210 decays to produce a stable isotope of lead.
During the decay, polonium-210 emits alpha particles of energy 5.3 MeV.

A sample of plutonium-210 initially contains 2.85×10^{15} atoms of polonium.

(a) Show that the decay constant of polonium-210 is about 6×10^{-8} s^{-1}.

(2)

(b) Calculate the rate of energy emission from this sample 28 days after the initial sample was prepared.

1 day = 86400 s

(5)

Our work does not stop here – we are committed to making our International Advanced Level Science qualifications the best they can be.

We are reviewing our papers across the full International Advanced Level Science suite of qualifications and undertaking a full assessment design analysis.

For **May/June 2023**, our improvements will focus on these key areas in **IAL Physics**:

- **reviewing** the range of question types asked and the number of marks allocated to these question types
- **reviewing** the range of skills students are being asked to demonstrate across the qualification
- **ensuring** the consistency across the suite of Science qualifications, where appropriate

Our improvements will not include changes to the specification content we will assess.

We will **provide** exemplars of any improvements in advance of the May/June 2023 exams and write to you again by the end of 2022.

We will **ensure** you are informed every step of the way, showing you what these improvements will look like and where you can find free support.

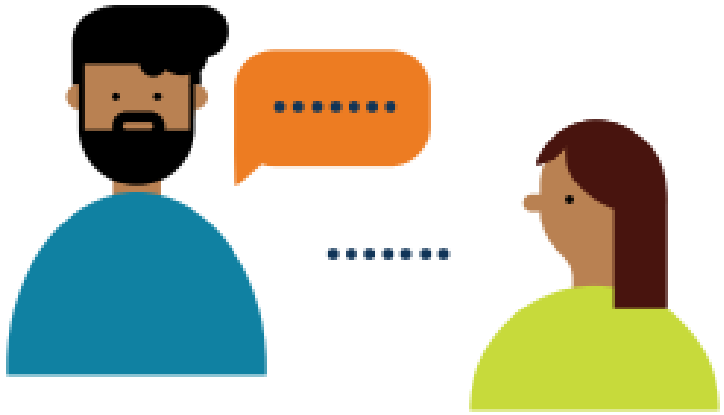
Diversity, Equity and Inclusion Training

Our assessment writers and examining teams are taking part in our new Diversity, Equity, and Inclusion training program to ensure our assessments are representative and accessible to all students taking our qualifications.

In 2021, Pearson developed the Global Content & Editorial Policy (GCEP) and Diversity Guidance Sets as resources to support anyone producing or reviewing content in Pearson.

Training on the DE&I concepts and how to use these resources is being rolled out to Assessment Associates across the General Qualification division through interactive workshops and focussed sessions which allow for subject-specific discussion and support.

Additionally, the production of diverse and inclusive content for our markets across the world is further supported by guidance on global cultural sensitives.



Thank you

We would like to take this opportunity to thank everyone who has offered feedback and been a vital part in helping us make these improvements.

If you have any further questions or feedback on these improvements, please **get in touch**:

support.pearson.com/uk/s/qualification-contactus