



Pearson

Examiners' Report/ Principal Examiner Feedback

Summer 2017

Pearson Edexcel GCSE
In Physics (5PH1F) Paper 01

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Paper Introduction

Unit 1 Universal Physics is divided into six topics all of which were tested in the 2017 Foundation examination.

Topic 1. Visible light and the Solar System tested mainly in Q1

Topic 2. The electromagnetic spectrum tested mainly in Q5

Topic 3. Waves and the Universe tested mainly in Q4

Topic 4. Waves and the Earth tested mainly in Q2

Topic 5. Generation and transmission of electricity tested mainly in Q3

Topic 6. Energy and the future tested mainly in Q6

Each examination allows every candidate to show what they know, understand and can do. There was a variety of question types from multiple choice and short response (quantitative and qualitative) items to questions requiring candidates to show their ability to construct a meaningful longer response by extended writing. One of the six mark questions in this year's paper enabled candidates to **compare** the (remembered) harmful effects of different parts of the electromagnetic spectrum while the other gave opportunity for candidates to **explain** a common term in a specific context **through interpreting** given information.

This report does not provide a comprehensive list of all possible acceptable responses to each item. Rather, it seeks to show how the 'How Science Works' and 'Assessment objectives' were implemented in practice as well as demonstrating how the Mark Scheme attempts to fulfil the principle that to score a mark a response must be **correct** (at the level), **relevant** and **sufficient**.

5PH1F_01_Q01ai

Question Introduction

Most correct responses for this part gave a named part of the electromagnetic spectrum, although a few gave the generic name.

Examiner Comment

Unqualified references to earthquakes are not sufficient for the mark

Examiner Tip

Whereas all electromagnetic waves are transverse, some seismic waves are transverse but others are longitudinal.

5PH1F_01_Q01aii

Question Introduction

This item illustrated the golden point about examination technique - read the question!

A not inconsiderable number of responses stated 'sound'.

Examiner Comment

Candidates do not score marks by simply repeating the question. The key word is capitalised here: State one OTHER....

Examiner Tip

This and other instructions should be introduced to candidates at every opportunity for practice.

5PH1F_01_Q01c

Question Introduction

This item checked understanding of a given ray diagram and also common technical terms.

Examiner Comment

It is important that when diagrams are drawn, the relevant parts are clearly labelled. Score 1 mark.

Examiner Tip

Give candidates (as students in your classroom) the opportunity to draw labelled diagrams as often as appropriate

5PH1F_01_Q01d

Question Introduction

The wave equation almost certainly will feature on the paper in some form

Examiner Comment

The unit mark however was scored by relatively few. Score 2 marks.

Examiner Tip

Whenever a number is calculated during lessons, or when students do a calculation for themselves in writing, demand, when appropriate, that they attach a unit to that number.

5PH1F_01_Q02c

Question Introduction

The concept of using data to find the position of an earthquake features frequently.

5PH1F_01_Q02d

Question Introduction

Interpreting given data and drawing conclusions from it are major scientific skills.

5PH1F_01_Q02e

Question Introduction

A variety of reasons were suggested for the origin of tsunami waves.

5PH1F_01_Q03b

Question Introduction

This was among the higher scoring items. It consisted of a single sentence with three gaps which were to be completed by choosing suitable words from the box.

5PH1F_01_Q03c

Question Introduction

The most frequent score on this item was 2.

5PH1F_01_Q03di

Question Introduction

As many as two-thirds of candidates scored this mark.

5PH1F_01_Q03dii

Question Introduction

This item together with the multiple choice, 3diii, were the most well-answered items.

5PH1F_01_Q04b

Question Introduction

Some responses to this item bordered on the dramatic / magical. Others used an inappropriate concept.

5PH1F_01_Q04c

Question Introduction

This item used the idea of scaling.

5PH1F_01_Q04d

Question Introduction

This item tested recall of some of the stages in stellar evolution for a star like our Sun.

Examiner Comment

Two names are correct but in the wrong places. Score 0

5PH1F_01_Q05aii

Question Introduction

Knowledge of the colours of the visible spectrum, in order, is part of the specification.

Examiner Comment

But there were some cases which demonstrated a lack of clear understanding. Score 2 marks.

5PH1F_01_Q05aiii

Question Introduction

This item asked for two uses of microwaves.

Examiner Comment

"things" is insufficient. Food, water or anything else which contains water would be suitable. Score 0.

5PH1F_01_Q06ai

Question Introduction

This item tested understanding of the terms 'useful' and 'wasted' with regard to energy.

5PH1F_01_Q06aii

Question Introduction

This was another example using ideas of conservation of energy.

Examiner Comment

Here the idea of conservation is expressed in terms of energy input and output, even though the word thermal/heat is not used. Score 2 marks.

5PH1F_01_Q06b

Question Introduction

This calculation item was about efficiency.

5PH1F_01_Q06c

Question Introduction

This six-marker was based on stimulus material in the form of energy chains for two lamps.

Examiner Comment

Firstly, the energy-saving lamp is identified. Then, the important information about the useful output being the same for each lamp is stated and reinforced by a quoted value. But the values quoted for waste energy in power station and transmission lines does not help the explanation. For level 3, some reference is necessary to the amount of energy supplied.

Paper Summary

Based on their performance on this paper, candidates are offered the following advice:

- Always give the process steps in your calculations as these can be awarded marks, even if the incorrect final answer is communicated.
- Avoid using bullet points for your six-mark answers. The Quality of Written Communication is included into the final mark for these items.

- The need for legible communication is key. Far too many candidates are not reaching their full potential owing to poor or illegible handwriting.
- Revise the whole specification of topics, it is clear that some parts are more favoured than others.
- Ensure that the units for physical quantities are practised before the examination.