



Introduction & Breakdown of Paper

Physics – Leaving Cert

Quick Notes

Introduction and tips for Leaving Certificate physics exam.

Physics is the study of the rules and principles governing the behaviour of the physical world in which we live. Physics seeks to provide explanations to observed phenomenon.

Physics for Leaving Certificate.

These notes address the topics required to complete the higher level leaving certificate course. Much of the material is common to both ordinary and higher level. The material exclusively for higher level is marked with a ***.

These notes are intended as a revision aid. As such they do not go into details of experiments or practice calculations.

The Exam paper- General tips

The leaving certificate exam is three hours long and consists of two sections.

Section A consists of four questions from which you must answer three. Each question carries 40 marks.

Section B consists of eight questions from which you must answer five. Each question carries 56 marks.

You should divide your time roughly as follows

Section A – around 16 minutes per question. Section B -around 23 minutes per question.

This allows 10 minutes at the start of the paper to read ALL the instructions, read ALL the questions and select the ones you feel you can best answer.

It also allows a few minutes at the end to check over your work and make sure you haven't forgotten anything.

This is, of course, a rough guide. Some questions may take a little less time and some a little more, but if you keep the guidelines in mind you will avoid running badly out of time and so not doing yourself justice in the exam.

Some students have a tendency to answer extra questions in the exam. While it may be possible to fit in a single extra question, my experience shows that pupils who take a few minutes to go over their answers and check they have answered as fully and correctly as possible gain more marks than those who rush through questions too quickly in order to answer extra questions.

One final point about the exam – there are no points to be gained by leaving early! Make use of the full time allocated, go back over questions, expand on explanations etc. you will be surprised what careless slips you may uncover.

Breakdown of paper

Section A examines the mandatory practicals which you are required to carry out as part of the course. Typically these questions involve describing how measurements were taken, graphing data

and performing necessary calculations, and listing precautions and sources of error in the experiment.

The layout of these questions tends to be the same from year to year. Thus, this is an easy section to pick up marks in. You need to

- (i) Know the method for each experiment.
- (ii) Know what you graph against what. Very often the table of raw data given is not the suitable form for the graph. You will often have to manipulate the data and produce a new table of the data you will actually plot (e.g. in an experiment to measure the refractive index of a glass block the following measurements of angle of incidence and angle of refraction were taken. Plot a suitable graph and hence measure the refractive index of the glass

$i/^\circ$	15	25	35	45	55
$r/^\circ$	10	16.4	22.5	28.0	33.1

Before attempting the graph you must convert this data to a usable form – i.e. produce a table of $\sin i$ and $\sin r$.

$\sin i$	0.26	0.42	0.57	0.71	0.82
$\sin r$	0.17	0.28	0.38	0.47	0.55

- The suitable graph is $\sin i$ against $\sin r$
- (iii) Having plotted the graph know how to manipulate the data to give the relevant result (e.g. slope, intercept etc and what that means in the context of the particular experiment)
- (iv) For each experiment have a few ideas as to what the main sources of error are and what precautions should be taken to ensure accuracy.

Section B:

Consists of eight questions from which you must attempt five.

Question 5 consists of ten short questions from which you need to answer eight. These cover the entire course but, as each short question is only worth 7 marks, nothing too complicated usually appears here. It generally consists of definitions, units and short calculations. If you have a good general overview of the course and have learnt definitions and laws this is an easy question to pick up high marks in, and indeed is a very popular question year after year.

Questions 6,7,8, and 9 address various topics. The layout of the questions can be a bit confusing. They don't label parts of questions (a) (b) (c) etc so it is necessary to read carefully and ensure that you attempt each part. I generally advise my students to put a line through each part when you have addressed it.

Question 10 has, to date, always consisted of two parts, (a) on particle physics or (b) on the applied electricity option. NOTE: there is no rule to say that these topics, or indeed any particular topic must be on the paper, but it would be unlikely that it will be omitted.

Question 11 contains a passage relating to some topical area of physics. NOTE: it is not a comprehension, the answers are not directly in the passage.

If the topic that appears in question 11 is one you are happy with this can be an easy question to gain high marks. The questions following the passage tend to be straightforward, worth 7 marks each, so, like question 5, quite manageable.

Question 12 consists of four parts, to answer two. Each part is from a different part of the course. Again the questions asked tend to be reasonably straightforward so if you have a good overall knowledge this is a good question to attempt.

Drawing Graphs:

This is a very important part of the course and you will be likely to need to draw at least one graph in your exam.

Points to remember are

- (i) Make maximum use of the graph page – choose a suitable scale to best fill the page
- (ii) Use a sharp pencil
- (iii) Indicate points with an x
- (iv) Label the axes clearly
- (v) Draw the line of best fit – one line that passes as near as possible to the maximum number of points
- (vi) Beware of outliers (points significantly different to the normal)

In the chapters which follow, laws and formulae are highlighted in purple, derivations are in yellow,