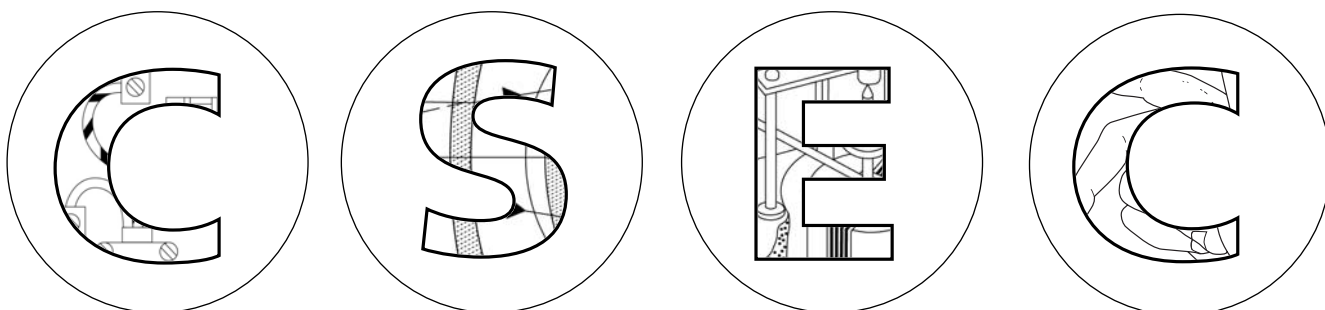
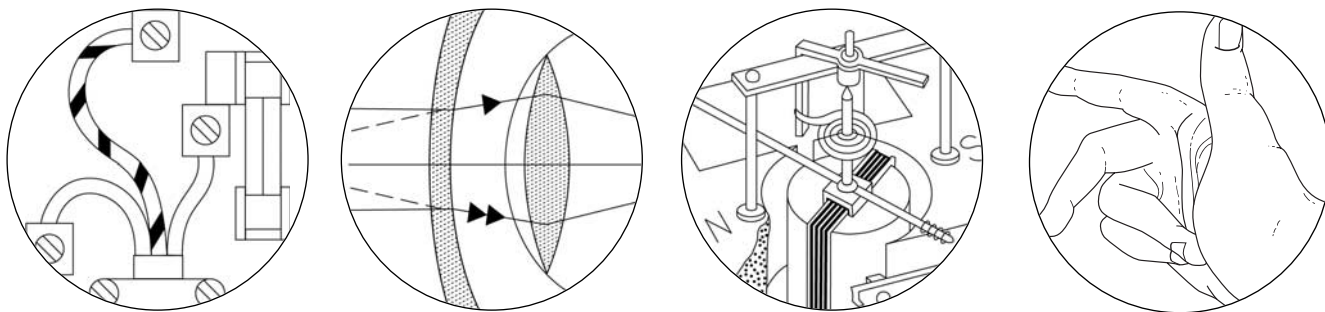
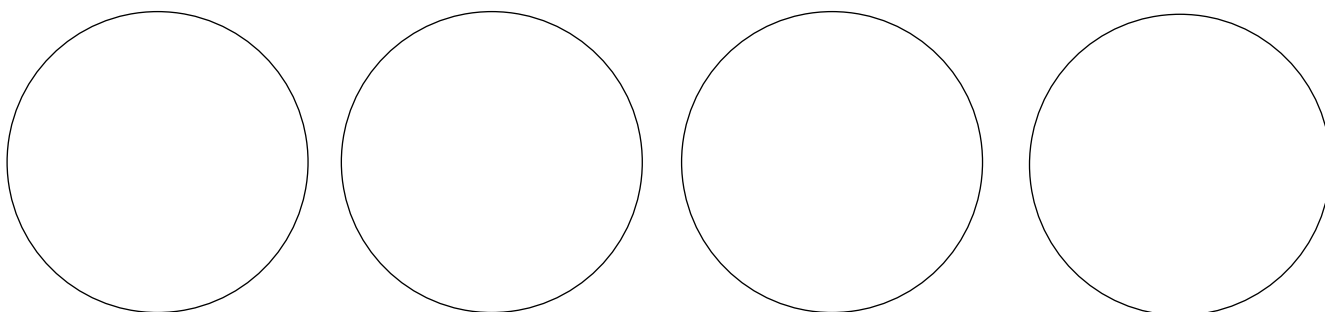


CSEC REVISION GUIDES



Revision for Physics



Peter Whiteley and Haydn Bassarath

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Contents

Introduction – preparation for examinations	iv
1 Measurement and units	1
2 Measurement and mathematics	4
3 Motion	7
4 Force, mass and weight	12
5 Adding vectors and scalars	14
6 Motion and forces	15
7 Energy, work and power	19
8 Turning forces	21
9 Pressure	24
10 Upthrust and flotation	27
11 Temperature and expansion	28
12 Gas laws	31
13 Kinetic theory of matter	34
14 Transmission of thermal energy	38
15 Heat and temperature change	41
16 Heat and phase change	43
17 Light	46
18 Refraction	49
19 Lenses	52
20 Waves	56
21 Theories of the nature of light	60
22 Electromagnetic spectrum	61
23 Sound	62
24 Static electricity	65
25 Direct current	68
26 Electricity in the home	73
27 Magnetism	76
28 Magnetic effect of an electric current	79
29 Force on a conductor in a magnetic field	82
30 Electromagnetic induction	85
31 Electronics	89
32 Logic gates	91
33 Structure of atoms	93
34 Radioactivity	95
35 Some aspects of the historical development of physics	100
Sample examination questions	104
Numerical solutions	115
Index	116

Introduction – preparation for examinations

Your school will enter you for your physics examination. If this is not the case, you should make your own arrangements.

- 1 Obtain the syllabus to help you with your revision. This document will probably provide examination dates and outline the form of the paper.
- 2 Obtain recent copies of the specimen papers for the examination.
- 3 Work out a program of revision and allow for a steady coverage during a period of 6–8 weeks before the dates of the examination.
- 4 Revise for a short period of 1–2 hours and then rest or go for a walk. When you feel refreshed, return for another session of work. Do not attempt to concentrate for long periods.
- 5 To achieve this programme of work you need to be fit. Achieve this by taking regular exercise, going to bed early and keeping regular hours. Do not smoke, take alcohol or use recreational drugs.

Revision hints

- 1 Try to work **on your own** without distractors such as radios, record players or the conversations of people.
- 2 **Sit at a table** with your books and work for the time suggested above. Do not sit in an easy chair. Remember that learning can be enjoyable but it is also hard work.
- 3 At this stage, it is important to **concentrate on the essential** points. The object is to learn facts, principles, theories, and practical techniques and, above all, to retain them throughout the examination period.

Methods of learning

You can learn with the help of your eyes, ears, and tongue.

- 1 **Read** the material aloud (aural memory).
- 2 **Write out** the material in note form (visual memory).
- 3 **Practise drawing** diagrams, flow charts, natural cycles and so on.
- 4 Use **memory aids**, such as key words, jingles and rhymes.
- 5 **Work through examination questions** by writing out the answers. Always check the answers if you are not sure (another form of revision).
- 6 Write minimum revision material on **index cards**.

You can fit these into your pocket and look at them at any time. Do not take them with you into the examination hall.

- 7 **Revise topic by topic** through your notes and through this book. Do not use a textbook at this late stage.

The day(s) before the examination

- 1 Do not revise night after night without getting any sleep.
- 2 Do not cram up to the last minute the night before the examination. Get to bed early.
- 3 Check (and recheck) the subject, paper number, starting time and location of the examination room.
- 4 Make sure that you have all the writing and other instruments that you require. Put them in a clear plastic bag. This is often required to ensure that you have nothing hidden in a pencil case. Include pen, spare pen, pencil, ruler, eraser, compass, pencil sharpener, red and green-coloured pencils.
- 5 Write your centre name and number, as well as your own personal examination number and keep this on a piece of paper with your instruments. Remember that this information must be written at the top of each examination question book or writing paper.

The examination day

- 1 Allow **plenty of time** to reach the examination centre. Get up early and have a good breakfast.
- 2 **Check all the writing instruments** that you will take to the examination.
- 3 Allow extra time to get to the examination hall in case of traffic jams or other delays.
- 4 Go to the toilet.
- 5 Wait outside the examination hall until called in by the invigilator.
- 6 Make sure that you have **your identity card**, school pass or whatever means of identification is required.
- 7 **Go to your place** (usually numbered with your examination number).
- 8 Fill in the **book or paper heading** when it is given out and you are told to start.
- 9 **Read the paper instructions** very carefully and do exactly as it says. These instructions will establish:

- a the time allowance;
- b the number of questions to be answered;
- c whether there is question choice.

Allow 5 minutes for reading time and then divide the remaining time by the number of questions to give an idea of the time to spend per question.

- 10 When **time is called** at the end of the examination you are to **put down your pen**. It is essential therefore that 5 minutes before the end of the examination, you ensure that:
- a all your papers are headed with your name and number;
 - b your papers are in the correct order and numbered;
 - c no papers have become mixed with your rough work and likewise no rough work is mixed in with your papers.
- On no account write anything after you are told to stop.

Types of question

You will find each type of question to be asked illustrated in this book. To remind you, they are as follows:

Paper 1 Sixty (60) multiple-choice questions

Paper 2 Four (4) structured free-response questions and one compulsory data-analysis question

Paper 3 Five (5) extended-essay questions

Candidates are required to answer all three papers.

Multiple-choice questions

These are known as ‘objective questions’. They are designed so that, of four responses given, only one is completely correct. The other three are known as distractors and you must eliminate these as incorrect, before marking the one correct answer. For example, Question 10 (Caribbean Examination Council Specimen Paper 1) is as follows:

- 10 Which of the following statements is TRUE for both diffusion and evaporation?
- (A) An increase in temperature occurs.
 - (B) A decrease in temperature occurs.
 - (C) A change of phase occurs.
 - (D) Increased molecular activity occurs at higher temperatures.

Note that (B) and (C) are possible answers for *only* evaporation but the question specifies that the answer must also be true for diffusion. Thus only answer (D) is correct.

One hour and 15 minutes is allocated for all the multiple-choice questions.

Structured free-response questions

Paper 2 has **structured free-response questions** and all of these must be answered during the 1 hour available. There are five questions, which means that each one should be answered in 18 minutes. Each question has four or five sub-questions, so that a maximum time of about 3–4 minutes is allocated to each.

There is one compulsory data-analysis question. The **data** may consist of *diagrams, graphs, tables or statements*. The questions developed from these data will gradually increase in difficulty from easy, straightforward questions to short essays.

A useful guide to the type of answer required is given by the marks allocated to each sub-question (e.g. 1 mark); this shows that a very brief answer is required, which might consist of one or two words. A question that ends ‘State your views on this matter’ for 6 marks, requires an extended answer.

Paper 3 has five free-response questions. You only need to answer three of these. These questions are similar to those in Paper 2 but generally require more essay writing.

Terms used in questions on examination papers

(Presented in alphabetical order)

Annotated drawing or diagram – provide a large labelled drawing or diagram.

Calculate – clearly state formulae and show all workings in calculations.

Compare and contrast – state points of similarity and points of difference between items in the question.

Each of these terms can be used separately, e.g. ‘compare’ means state the similarities and differences, while ‘contrast’ means just state the differences.

Define – only a strict definition is required here.

Describe – this is always a full, written description including all the main points of the topic.

Discuss – provide a balanced argument or critical account of all the points involved. This type of answer needs careful planning and no digression from the main argument is permitted.

Distinguish between – this concentrates on the differences between two or more concepts.

Explain – involves a detailed description of the topic so that it is clearly understood.

Give an account of – again involves a description of the topic.

Give an illustrated account of – must include a written account that refers to the included diagrams.

Graph – graph paper and tables of data are usually given. Remember the following:

- 1 Choose scales on the graph paper that will fill it, as nearly as possible.
- 2 The horizontal axis should represent the *variable* controlled by the *experimenter* (e.g. length of string, mass, etc.).
- 3 The vertical axis should represent the *variable under investigation* (e.g. time of oscillation, temperature reached, etc.).
- 4 Axes must be labelled at the extreme end (e.g. mass (g)), and the units entered along the axes (e.g. 0, 2, 4, 6, 8, etc.).
- 5 Enter the points in pencil as ‘x’ or ⊙.
- 6 Points should be joined approximately (i.e. using either a smooth curve or a straight line, to create a ‘line of best fit’ = see 2.5 Graphs, on page 5).
- 7 A ‘sketch graph’ may not require graph paper but the scales should be approximately correct and the shape of the graph should show clearly the way one variable influences the other.

List – produce a series of points or observations underneath each other. They should be numbered serially (e.g. (i), (ii), (iii), etc.).

Measure – refers to quantities that can be read directly from some measuring instrument (e.g. ruler, thermometer, balance, etc.).

Outline – requires only a description of the most important points.

State – requires a precise answer similar to a definition.

Suggest – an answer required that will draw on physical principles applied to a new or novel situation. The material may be outside the syllabus. Nevertheless the candidate should be able to answer from within his/her own knowledge.

Tabulate – using data supplied, or the candidate’s own knowledge, construct a table showing the facts.