Revision Guide

Cambridge International AS and A Level

Computing

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Revision Guidelines

Revision by the nature of the word implies that this is re-visiting the content and topics that you have studied throughout the year. What you already have in terms of resources to help you with your revision will largely determine the way in which you set about and plan your revision program.

Key issues include:

- ✓ Have you got a copy of the textbook you have followed throughout your course?
- ✓ Did you use it as your course progressed to make your own notes?
- ✓ Has your teacher provided you with notes as each topic has been covered?
- ✓ Have you worked through worksheets prepared by your teacher?

All of these are a good starting point and your first revision task is to gather together all the materials you have produced and accumulated throughout the course. Organise them in the same way as the syllabus you are revising for.

When should I start revising?

As early as possible. Examinations are generally a stressful time and so you need to do everything possible to make this a 'stress free' experience.

A trawl through all the materials you have should establish:

- ✓ What topics you have clear notes for and where you do not
- ✓ Topics where you can do lots of practice, for example, the number systems content in section 3.4
- ✓ Topics which you are definitely confident about and those that you are not.

All questions must be answered in the exam

You must not have large gaps in your understanding and skills to apply this knowledge. Both are important. The trend generally for all advanced level examinations is away from questions which only ask you to reproduce basic knowledge, for example reproducing a basic definition. For a question about database design this could be 'State what is meant by a primary key and a foreign key'. However, a much better assessment of your ability will be if you are able to apply this to a given simple practical scenario. The question you are more likely to face is – 'Which attribute would be the primary key for table X' – 'How is the relationship formed using a foreign key to table Y.'

Computing is a practical based subject – probably second only to engineering – and so it is reasonable that your computing examination papers should reflect this with questions that require answers which apply your knowledge in the context of practical scenarios.

Past examination paper questions

Looking at as many previous questions as possible can be a very valuable part of revision. Many examples from Cambridge past papers have been carefully selected and included at the end of each section in the course textbook.

Note

Cambridge International Examinations bears no responsibility for the example answers to questions taken from its past question papers which are contained in this publication.

Your teacher will be able to supply you with further past papers and specimen papers and guide you to relevant questions for the syllabus you are following.

So, you've trawled through and organised the materials you have produced throughout the course – what next?

Specific Revision Materials

Cambridge International AS and A Level Computing Revision Guide

This is a new book from Cambridge University Press. The organisation is identical to the course textbook and has frequent 'test yourself' questions as you work through each section.

Revision cards

These are a favourite with students and have the obvious advantage that you can carry them around with you and dip into them in any odd five minutes you can find. Cards are available in different colours and so you could easily develop a system to

code cards on the same general topic in the same colour. See the example for Chapter 22 on Databases which follows.

How will you organise the cards?

- ✓ Separate sets for each section
- ✓ Separate sets for each topic

Database design

Attribute – Data item recorded as part of a database design.
Entity – In database design, something about which we record data, for example, a Customer. Entities are implemented as tables.
Primary key – An attribute (or combination of attributes) chosen to ensure that all the records in a table are unique.
Secondary key – An attribute for which an *index* has been created other than the primary key.
Relationship – A link between two tables.
Can be:

- One-to-one – which are uncommon
- One-to-many – the most common
- Many-to-many – which cannot be implemented with relational database software.

Foreign key – An attribute in a table which links back to the same primary key attribute in a second table.

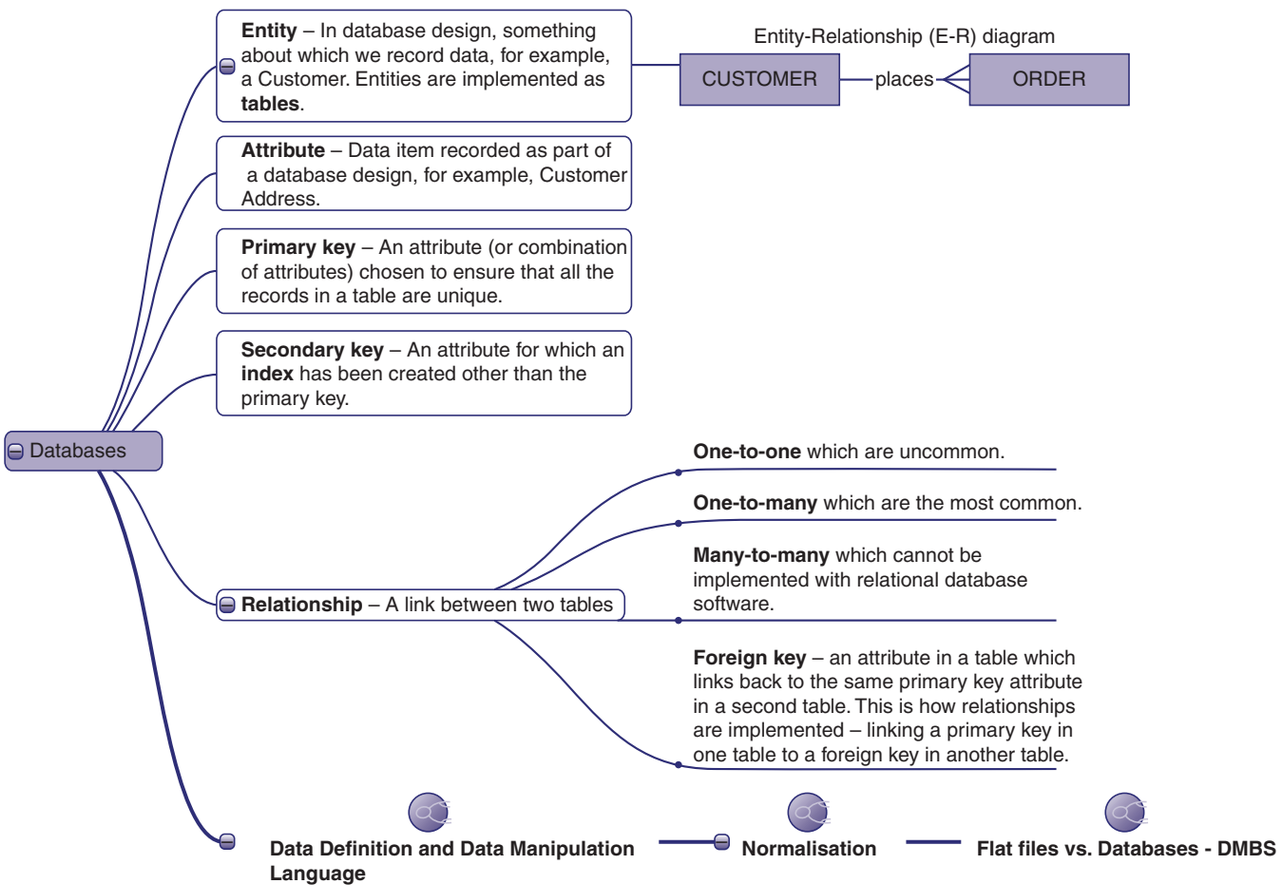
See also cards:

- Normalisation
- Flat files versus Databases and Database Management Systems
- Data Definition Language (DDL) and Data Manipulation Language (DML)

Section 3 of the Cambridge syllabus requires that you are also familiar with related topics studied in Section 1. You could devise a system to quickly reference cards to each other where some of the cards have content which was first studied in Section 1 are referenced easily?

Mind mapping

Mind maps provide an effective way to break the content down into manageable amounts and if you are a person who 'thinks visually' then you will probably take to mind mapping. My experience is that students tend to be polarised into 'I like using them' or 'I hate them' but I have found that students do agree they are a useful revision tool. A simple example is shown for (some of) the database content for Chapter 22.



Also there is available on the World Wide Web free mind mapping software and this usually has features which are very appropriate for revision:

- ✓ The expansion (for the detail) and collapsing (to see the 'big picture') of branches
- ✓ The inclusion of graphics.

How do I revise?

What time of day?

There are all sorts of conflicting evidence about when your brain is at its most receptive! You will need to decide what time of day seems to work best for you and how long each session should be.

Shall I revise on my own?

Maybe, but it will be much less daunting if you team up with a fellow student – a 'revision buddy' – and revise together. This could include:

- ✓ Share the work of producing the revision cards and/or the mind maps
- ✓ Test each other on some basic definitions and the factual knowledge of a topic.

Do lots of past examination questions

But consider carefully what 'doing examination questions' actually means for you. It is tempting to look at a question then, talking to yourself recite the answer you would give – then move on to another question. That might be sufficient, but remember the examination is a ***written*** paper and so why not spend the extra time in writing out the answer on rough paper? That way when you read it back it may be clear that there are some points which you have omitted or some points where the meaning when reading it back is unclear.

Seek advice

You need to be confident with all the syllabus content (remember there is no choice of questions) so don't try to bury problems and topic areas where you are unsure. Your revision buddy may be confident about it and after five minutes of him/her talking it through, something about which you have been unclear for six months, becomes clear for the first time. Failing that, be honest that you are unsure and seek help from your teacher. Problems will not go away and solve themselves – you must be pro-active in plugging the gaps in your understanding.

On the day – Examination technique

Reading the paper

It is sensible to read the entire paper before you start to attempt any of the questions. This will give you a good idea as to the questions you are confident about and those which may need more time spent on them.

The number of marks is a good indicator of the time the examiner expects you to take. For example, if a paper has a total of 90 marks and 2 hours to complete every three marks should take 4 minutes – or a ten mark question should take around 13 minutes.

Layout of the paper

All papers have the questions displayed in the answer booklet so the amount of space provided is an indicator of the length of answer the examiner is expecting.

Is it important to answer the questions in a paper in order? You do not need to answer the questions in order. As a general rule questions which are considered less demanding will be at the start of the paper.

Question keywords

Some questions will have a short introduction and this will apply to all parts of the questions which follow. Specific questions will each have a keyword which is the indicator as to the style of answer expected.

'Define ...' – 'State ...' – 'Give ...' all require an answer of only one or only a few words giving a short and concise answer. For example: Give the attributes for the Loan table below, showing the primary key.

You should **not** create a LoanID for this table.
Loan (....., ..., ..., ...)

(2 marks)

'Describe ...' now wants more detail and the indicator of precisely how much is the number of marks for the question; a three mark question will usually require three different points to be made. For example 'Describe how an assembly language program is translated into machine code'.

'Explain ...' now wants not only a description but the answer will contain some reasoning. For example: 'Explain why an interpreter has better diagnostics features than compiler software'.

The following question – taken from a Cambridge past-paper illustrates many of these points.

Question from a Cambridge past-paper

1. (a) State what is meant by a real-time application.

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..... [1]

There is no introductory statement. The keyword is 'State' and what is wanted is the basis 'bookwork' definition of a real-time system.

(b) An air conditioning system is a real-time application.
Explain how sensors and actuators are used to control an air conditioning system in an apartment.

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..... [4]

The introductory statement applies to part (b) only. The keyword is 'Explain'and there are four marks. The answer must make at least four clear points describing how temperature sensors send data values to the processor – how they are processed – when an actuator is involved.

(c) Give *one other* example of a real-time application. Justify why your choice is a real-time application.
Example.....

Justification.....

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..... [2]

Keyword is 'Give' but you are having to be more resourceful and come up with your own example of a real-time system. The key requirements are the example and its justification and the paper makes it clear how you are to present this. You can assume there will be one mark for the example and the second mark for the justification.

Cambridge 9691 Paper 31 Q4 June 2011

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