Cambridge Assessment International Education

Interactive

Learner Guide

Cambridge International AS & A Level Information technology 9626

For examination from 2022

Version 1

Cambridge Pathway

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Contents

Contents

About this guide 4

Section 1: Syllabus content - what you need to know 5

Section 2: How you will be assessed 7

Section 3: What skills will be assessed? 8

Section 4: Command words 9

Section 5: Example candidate response 10

Section 6: Revision 14

Section 7: Useful websites 26

About this guide

This guide explains what you need to know about your Cambridge International AS & A Level Information Technology 9626 course and examinations.

This guide will help you to:

- understand what skills you should develop by taking this AS & A Level course
- understand how you will be assessed
- understand what we are looking for in the answers you write
- plan your revision programme

Following a Cambridge International AS & A Level programme will help you to develop abilities that universities value highly, including a deep understanding of your subject; higher order thinking skills (analysis, critical thinking, problem solving); presenting ordered and coherent arguments; and independent learning and research.

Studying Cambridge International AS & A Level Information Technology encourages learners to become effective and discerning users of IT. In addition, it will help you to:

- develop a broad range of IT skills
- develop an understanding of the parts, use and applications of IT systems within a range of organisations, including the use of networking technology
- develop an understanding of how IT systems affect society in general
- develop a broad knowledge of the use of IT in workplace situations and the potential risks
- develop an understanding of the system life cycle and apply this understanding to workplace situations
- develop an understanding of project management skills
- be aware of new and emerging technologies
- apply your knowledge and understanding of IT to solve problems.

Section 1: Syllabus content - what you need to know

This section gives you an outline of the syllabus content for this course. For AS Information Technology, you will have to study eleven components.

1. Data processing and information
2. Hardware and software
3. Monitoring and control
4. Algorithms and flow charts
5. eSecurity
6. The digital divide
7. Expert systems
8. Spreadsheets
9. Modelling
10. Database and file concepts
11. Sound and video editing

For A Level Information Technology, you will have to study a further 9 components.

12. IT in society
13. New and emerging technologies
14. Communications technology
15. Project management
16. System life cycle
17. Mail merge
18. Graphics creation
19. Animation
20. Programming for the web

Make sure you always check the latest syllabus, which is available from our public website.

Prior knowledge

Knowledge of the topics covered by Cambridge IGCSE™ Information and Communication Technology (0417) is assumed.

Key concepts

These are the essential ideas that will help you develop a deeper understanding of the subject and make linksbetween different aspects. Key concepts may open up new ways of thinking about, understanding or interpreting the important things you need to learn.

- **Impact of IT**

  The application of technology to process information impacts all aspects of our lives. The enormity of the impact can be seen in industry and commerce, transport, leisure, medicine, in the workplace and the home.

  Communications using technologies have made the world seem smaller.

- **Hardware and software**

  Hardware and software interact with each other in an IT system. It is important to understand how these work, and how they work together with each other and with us in our environment.

- **Networks**

  Computer systems can be connected together to form networks allowing them to share data and resources.

  The central role networks play in the internet, mobile and wireless applications and cloud computing has rapidly increased the demand for network capacity and performance.

- **The internet**

  The internet is a global communications network that uses standardised communications protocols to allow computers worldwide to connect and share information in many different forms. The impact of the internet on our lives is profound. While the services the internet supports can provide huge benefits to society, they have also introduced issues, for example security of data.

- **System life cycle**

  Information systems are developed within a planned cycle of stages that cover the initial development of the system and continue through to its scheduled updating or redevelopment.

- **New technologies**

  As the information industry changes so rapidly, it is important to keep track of new and emerging technologies and consider how they might affect everyday life.

Section 2: How you will be assessed

Cambridge International AS Information Technology makes up the first half of the Cambridge International A Level course in Information Technology and provides a foundation for the study of Information Technology at Cambridge International A Level.

About the examinations

There are three routes for Cambridge International AS & A Level Information Technology. You can study for just the AS qualification and take Papers 1 and 2 or carry on and study for the full A Level qualification and take Papers 3 and 4.

You may want to take the AS exams first in one session, perhaps after 1 year, and then take the A Level exams in subsequent session perhaps after another year. You may also take all the papers in the same session.

The following table summarises these options:

	Route	Paper 1	Paper 2	Paper 3	Paper 4
1	**AS Level only** (Candidates take all AS components in the same exam series)	✓	✓		
2	**A Level** (staged over two years) Year 1 AS Level*	✓	✓		
	Year 2 Complete the A Level			✓	✓
3	**A Level** (Candidates take all components in the same exam series)	✓	✓	✓	✓

* Candidates carry forward their AS Level result subject to the rules and time limits described in the Cambridge Handbook.

Candidates following an AS Level route will be eligible for grades A–E. Candidates following an A Level route are eligible for grades A*–E

About the papers

The table gives you further information about the examination papers:

Component	Time and marks	Questions	Percentage of total mark
Paper 1 Theory	1 hour 45 minutes 70 marks	Questions are based on sections 1–11 of the subject content. You must answer all questions on the paper.	50% of the AS Level 25% of the A Level
Paper 2 Practical	2 hours 30 minutes 90 marks	The tasks in this practical paper test sections 8–11 of the subject content. You must also apply knowledge and understanding from sections 1–7 of the subject content. All tasks are compulsory.	50% of the AS Level 25% of the A Level
Paper 3 Advanced Theory	1 hour 45 minutes 70 marks	Questions are based on sections 12–20 of the subject content. You must answer all questions on the paper.	25% of the A Level
Paper 4 Advanced Practical	2 hours 30 minutes 90 marks	The tasks in this practical paper test sections 17–20 of the subject content. The paper includes tasks from sections 8–10 within a problem-solving context. You must apply knowledge and understanding of all subject content. All tasks are compulsory.	25% of the A Level

Section 3: What skills will be assessed?

The examiners take account of the following skills areas (**assessment objectives**) in the examinations:

Assessment objectives (AO)	What does the AO mean?
AO1	Recall, select and communicate knowledge and understanding of IT.
AO2	Apply knowledge, understanding, skills and judgement to produce IT-based solutions.
AO3	Analyse, evaluate, and present reasoned conclusions.

It is important that you know the different weightings (%) of the assessment objectives, as this affects how the examiner will assess your work.

Assessment objective	Weighting in components %			
	Paper 1	**Paper 2**	**Paper 3**	**Paper 4**
AO1 Recall, select and communicate knowledge and understanding of IT	75	0	70	0
AO2 Apply knowledge, understanding, skills and judgement to produce IT-based solutions	0	100	0	100
AO3 Analyse, evaluate, and present reasoned conclusions	25	0	30	0
Total	100	100	100	100

You can see that Assessment objective AO2 is only assessed in the practical papers; papers 2 and 4. Assessment objectives AO1 and AO3 are only assessed in the theory papers; papers 1 and 3.

For Assessment objectives AO1 and AO3 you need to understand the importance of the COMMAND words, so you know what is expected from you when answering the questions in the exam.

Section 4: Command words

The following table includes explanations of the command words used in questions.

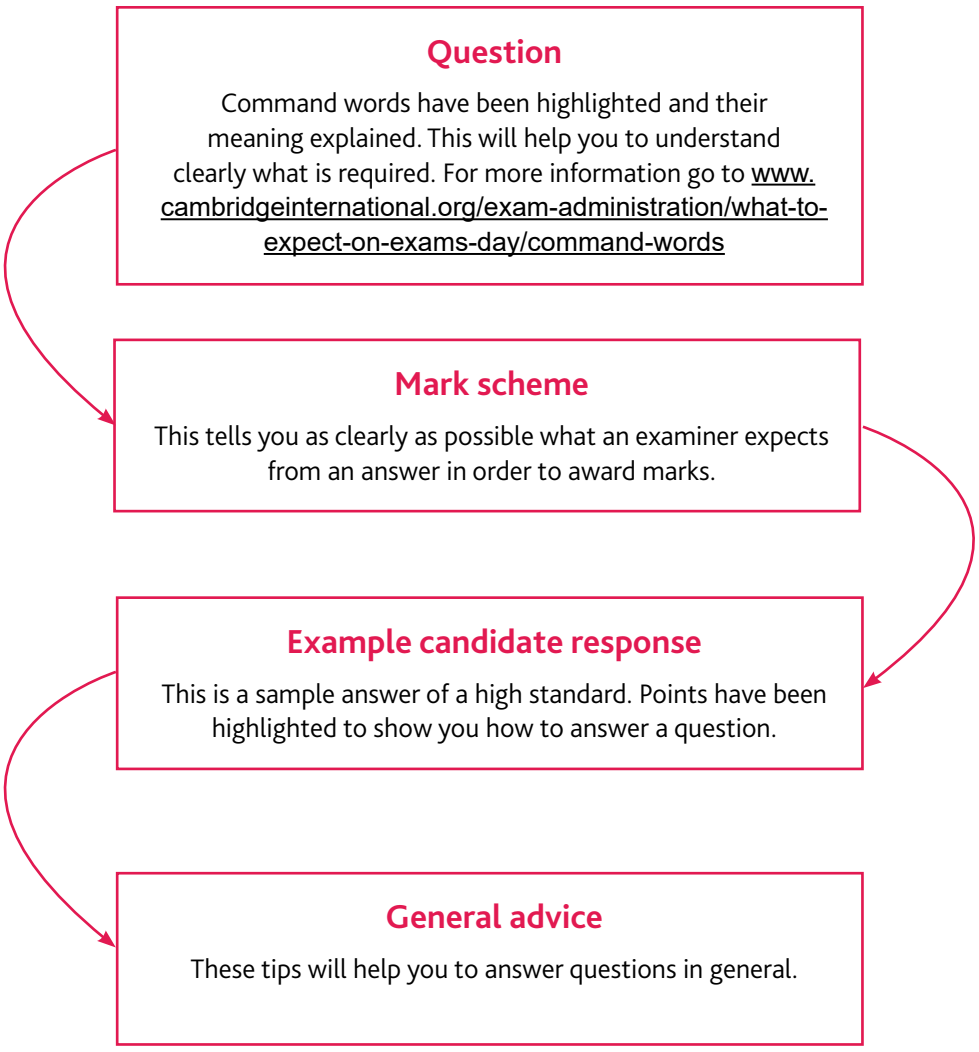
Command word	What it means
Analyse	examine in detail to show meaning, identify elements and the relationship between them
Compare	identify/comment on similarities and/or differences
Contrast	identify/comment on differences
Define	give precise meaning
Describe	state the points of a topic / give characteristics and main features
Discuss	write about issue(s) or topic(s) in depth in a structured way
Evaluate	judge or calculate the quality, importance, amount, or value of something
Examine	investigate closely, in detail
Explain	set out purposes or reasons / make the relationships between things evident / provide why and/or how and support with relevant evidence
Identify	name/select/recognise
Justify	support a case with evidence/argument
State	express in clear terms
Suggest	apply knowledge and understanding to situations where there are a range of valid responses in order to make proposals
Sketch	make a simple drawing showing the key features
State	express in clear terms
Suggest	apply knowledge and understanding to situations where there are a range of valid responses in order to make proposals / put forward considerations

Section 5: Example candidate response

This section takes you through an example question and candidate response. It may help you to understand what is required in your response. Understanding the questions will help you to know what you need to do with your knowledge. For example, you might need to state something, calculate something, find something or show something.

All information and advice in this section is specific to the example question and response being demonstrated. It should give you an idea of how your responses might be viewed by an examiner, but it is not a list of what to do in all questions. In your own examination, you will need to pay careful attention to what each question is asking you to do.

This section is sructured as follows:



Question

This question refers to a fictitious company named TTS. Two files were provided in the source files folder. File named *TTSstaff.csv* contained the details of all the staff employed by TTS and the *Meeting.rtf* file was a template letter.

The task required candidates to use the *Meeting.rtf* file as the template to mail merge letters to selected members of staff.

TTS will produce mail merged letters for selected TTS staff. Joel Knight, the CEO of TTS, will request that members of the Executive (Pay Scale E) and Management levels 3 & 4 (Pay scale M3 and M4) attend a meeting at the head office in London. All TTS staff are listed in TTSstaff.csv.

Joel requires the staff on the management scale to attend for the meeting at 14:00 hrs.
Members of the Executive need to arrive for 09:00 hrs.

Use the Meeting.rtf file to mail merge letters to the appropriate members of staff.
Save the merge document as Board Meeting MergeDoc
Save the merged letters as Board Meeting Letters

This suggests that you examine and possibly filter the data source file to determine the likely recipients.

This details the conditional text that you will need the letters to display for the correct people.

These are the instructions for the merge. You must use precisely these filenames for the documents.

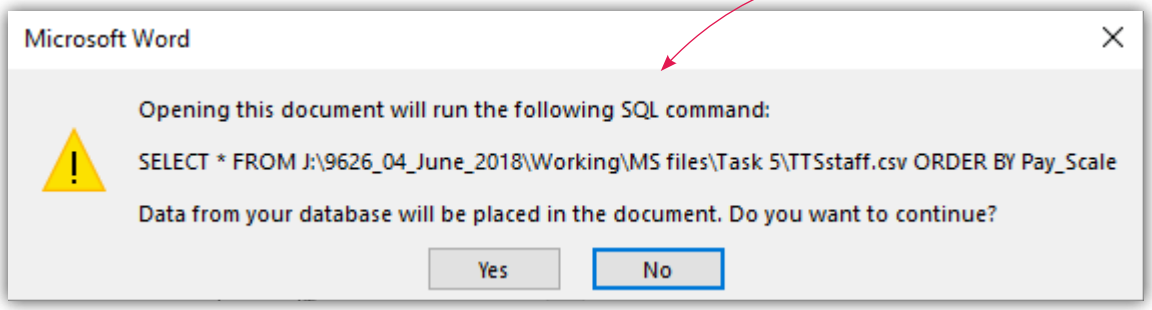
Mark scheme

Task	Answer	Marks
1	Evidence of a valid selection method for staff on pay Scales E3, M3, M4	1
	Evidence of an efficient selection method - e.g. the use of wildcards or SKIPIFs	1
	The is Date inserted as a field with **dd-MM-yyyy** format	1
	Given_name & Family_name mergefields are inserted with the correct spacing	1
	The Branch (name) mergefield is inserted with the correct spacing	1
	The Given_name mergefield is inserted with the correct spacing (and comma not deleted)	1
	A conditional field(s) is inserted for displaying the required text/time	1
	The conditional field uses a comparison on the Pay Scale field (or follow through from data source)	1
	A wildcard on the Pay Scale criterion is used e.g. = E* or E? M* or M?	1
	Valid/Correct conditions are set to display the correct time for each recipient. (09:00 hrs or14:00 hrs)…	1
	…an efficient and valid single conditional mergefield is used	1
	Letters to the correct recipients are created… Holly Harrison(14), Harumi Valencia(9), Endre Mekek(9), Jessica Wulf(14) allow Joel Knight(9)	1
	… the letters have the correct text/times	1
	…the letter to the instigator, (Joel Knight) is omitted	1
	The letters are consistently formatted and fit for purpose. (proof read)	1
		15

Now let's look at the example candidate response to the question and the examiner comments.

Example candidate response

The candidate submitted *Board Meeting MergeDoc.rtf* which opened with this dialog box:



This showed that the candidate selected all the staff. This may not be efficient since we only need some of the staff.

When the document is opened, however, it provides more evidence of the method used to select the recipients.

The selection method is valid and efficient in that it automatically excludes those on pay Scales A, B, C, D, M2, and M1

This shows that the candidate has examined the source file carefully and can be awarded the first two marks.

Registered Office
1 Smarthurst Street
London
PO Box 5674

03-05-2018

The date is not shown as a field and although it is in the correct format, the candidate will not be awarded the third mark.

{ SKIPIF { MERGEFIELD Pay_Scale } < "E" }
{ SKIPIF { MERGEFIELD Pay_Scale } = "M2" }
{ SKIPIF { MERGEFIELD Pay_Scale } = "M1" }

{ MERGEFIELD "Given_name" } { MERGEFIELD "Family_name" }
{ MERGEFIELD Branch } Branch

Board Meeting

The Name and Branch mergefields are inserted and spaced correctly but the candidate did not leave a space before the Given_name mergefield so will not be awarded the sixth mark.

Dear{ MERGEFIELD Given_name },

It has been decided to call an extraordinary board meeting in order to discuss new opportunities following our 10th anniversary.

The meeting will take place at the head office in London on 25th May 2017.

Please arrive for the meeting at { IF { MERGEFIELD Pay_Scale } = "E*" "09:00 hrs" "14:00 hrs" }

The candidate used a single conditional field to display the correct text/time and it uses the Pay_Scale mergefield. The conditional field uses a wildcard, the conditions are valid and correct so marks seven to eleven can be awarded.

When *Board Meeting MergeDoc.rtf* document was used for the mail merge, 5 letters were created. All had the correct times shown so the candidate could be awarded the 12th and 13th marks.

However, the person sending the letter (Joel Knight) should not receive a copy. He should have been excluded from the recipients by some method, possibly by another SKIPIF using Pay_Scale=E5. Even manually deleting his copy after the merge would have been enough for the 14th mark.

All the letters were consistently formatted but the missing space before the Given_name meant they were not fit for purpose; so the last mark was not awarded. If the candidate had proof read the letters, realised the mistake and corrected each letter after the merge, that mark could have been awarded.

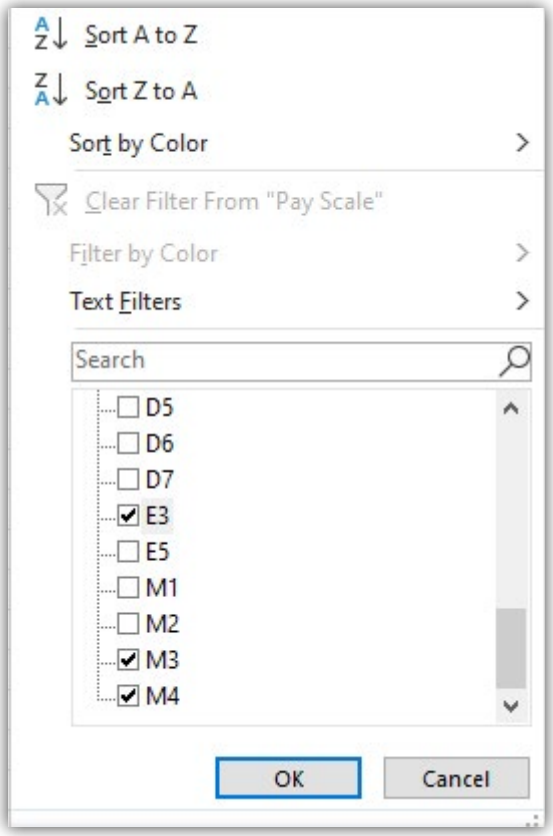
General advice

It is always a good idea to read the question carefully, noticing any command words and key instructions (in this case the Pay_Scales and the Time of the meeting). You may want to underline them to help you think what they mean. Many candidates jump straight into the task only to realise, too late, that they've used the wrong method or carried out unnecessary work. Read the question first and pause to think about what you need to find before you start working. This will help you to choose an efficient method and gain the most marks.

Also don't forget that your method is part of your solution and if you are asked to provide evidence of your method in an evidence document, think carefully about what screenshots would show the examiner how you achieved your solution. In the example task, to determine the correct recipients, you may have filtered the TTSstaff data in a spreadsheet. Without evidence of your selection method you may not have been able to gain the first 2 marks.

If you have had a good attempt at a task and still not managed to finish it, it is best to move on to another task and perhaps come back to it later. This will help you to make good use of the time you have available.

Try to allow a few minutes at the end of the examination to check and proof read your work. This will help you to spot errors in formatting that could prevent marks being awarded.



Section 6: Revision

This advice will help you revise and prepare for the examinations. It is divided into general advice and specific advice for each of the papers.

Use the tick boxes ☐ to keep a record of what you have done, what you plan to do or what you understand.

General advice

Before the examination

- ☐ Find out when the examinations are and plan your revision, so you have enough time for each topic. A revision timetable will help you.
- ☐ Find out how long each paper is and how many questions you must answer.
- ☐ Know the meaning of the command words used in questions and how to apply them to the information given. Highlight the command words in past papers and check what they mean. There is a list on p9 of this guide.
- ☐ Make revision notes; try different styles of notes. See the Learner Guide: Planning, Reflection and Revision (www.cambridgeinternational.org/images/371937-learner-guide-planning-reflection-and-revision.pdf) which has ideas about note-taking. Discover what works best for you.
- ☐ Work for short periods then have a break. Revise small sections of the syllabus at a time.
- ☐ Build your confidence by practising questions on each of the topics.
- ☐ Make sure you practise lots of past examination questions so that you are familiar with the format of the examination papers. You could time yourself when doing a paper so that you know how quickly you need to work in the real examination.
- ☐ Look at mark schemes to help you to understand how the marks are awarded for each question.
- ☐ Use the Topic support guides which are available from here: https://www.cambridgeinternational.org/programmes-and-qualifications/cambridge-international-as-and-a-level-information-technology-9626/published-resources/
- ☐ Look at past papers, examiner reports and specimen papers which are available from here: https://www.cambridgeinternational.org/programmes-and-qualifications/cambridge-international-as-and-a-level-information-technology-9626/past-papers/
- ☐ Ask your teacher to show you the Example Candidate Responses which are available on the School Support Hub

During the examination

- ☐ Read the instructions carefully and answer **all** the questions.
- ☐ You do not have to answer the questions in the order they are printed on the paper. You may be able to do a later question more easily then come back to an earlier one for another try.
- ☐ Read each question very carefully. Misreading a question can cost you marks:
  - Identify the command words – you could underline or highlight them.
  - Identify the technical terms and perhaps underline or highlight them too.
  - Try to put the question into your own words to understand what it is really asking.
- ☐ Read all parts of a question before starting your answer. Think carefully about what is needed for each part. You will not need to repeat material.
- ☐ Check the number of marks for each question or part question. This tells you how many points you must make.
- ☐ If you are asked to cover the advantages and disadvantages of something, split the marks evenly unless directed otherwise in the question.
- ☐ Make sure that you have answered everything that a question asks. Sometimes one sentence asks two things, e.g. 'Show that … and hence find …'. It is easy to concentrate on the first request and forget about the second one.

- [ ] **In practical tasks**, look very carefully at the information you are given.
  - for data, read the column labels and use what information you are given to find out exactly what the data concerns
  - for images or drawings, take note of the proportions and positions of objects
  - for animations, videos or audio, pay close attention to any timings required
  - **very important**; make sure your solutions are saved or exported as the correct file type. Solutions that are not in the correct file format will not be marked
  - for mail merges, if possible, test your selection results so you know what to expect from the merge; always proof read your merge results to make sure the letters are fit for purpose.

Advice for all papers

- [ ] Begin by very carefully checking the instructions on the exam paper, highlighting or underlining the key points.
- [ ] Remember, you don't have to answer questions in the order they appear. Some may want to start by getting the more difficult questions out of the way, while others may prefer to build confidence with easier questions first.
- [ ] Read the question(s) thoroughly, then re-read to make sure you've understood and haven't made assumptions.
- [ ] **Marks:** Look at how many marks are allocated to a question. This gives you a clue as to how much work is expected. If it is only worth 1 mark and you are stuck, it is not worth spending too much time on. Move on and come back to it.
- [ ] Don't race to start writing before you have checked through the paper. Read the instructions and all questions slowly and at least twice.

Advice for all Papers 1 and 3

- [ ] Answer the questions in sentences. Never give 'one word' or one 'phrase' answers.
- [ ] Check carefully what the question is about. Select the right information to answer it and don't include unnecessary information. Don't just write down everything you know on the general topic, as that suggests you don't really understand the question. It also wastes valuable time.
- [ ] Keep most sentences short and focused. That will help with clarity and in making every point stand out for the examiner. It also makes it faster and easier for you to check your work and correct it.
- [ ] Always refer your answer back to the question. For example, if a question asks you to list a component of a system always state its purpose and role within the system.
- [ ] Don't expect an examiner to infer your meaning. Your answers must be clear and unambiguous. Examiners have to mark many papers – they don't have time to sit and consider what you might mean in your answer. You can help them to determine where you deserve marks by giving answers that are clear and easy to read. It's a simple exam tip but can make a real difference. For example, if you mean Optical Character Recognition don't just write OCR because that could mean Optical Character Reader.
- [ ] Don't use brand names for software; for example, refer to '…using a spreadsheet' rather than '…using Excel'.
- [ ] For multiple choice questions, there are further things you can do to improve your marks:
  1. **Formulate an answer:** Before reading any of the solution options, decide upon a reasonable answer. If you read the solutions before thinking about the question, you may be influenced incorrectly.
  2. **Read all options:** Read all the choices before you answer. There may be something you missed and need to rethink.
  3. **Eliminate answers** you know are incorrect: You will usually be able to use your IT knowledge to determine that some answers cannot be correct. Eliminate those straight away to allow you to concentrate only on answers that could be plausible.
  4. **Always choose an answer:** If you don't mark a choice, you certainly won't get a mark. Don't leave any multiple choice questions blank. Even if you are not sure of the answer, you can use elimination to narrow down the possible options, and select what you believe to be the correct answer.

Advice for all Papers 2 and 4

- ☐ Make sure that each solution file is submitted with your Centre number and candidate number in its name. For example: Videotask_ZZ999_9999.mp4
- ☐ Try to create efficient solutions.

  Consider methods that could be used to cope with changes in data without manual manipulation.

  Use 'nesting' of formulae or conditions.
- ☐ Think carefully about the evidence that may be required in a task. Include all evidence required to demonstrate you have completed the task.
- ☐ Make sure you match the correct timings in videos, audio tracks and animations.
- ☐ Be careful to match the position, size and proportions of objects in images or drawings.
- ☐ Always save or export files in the format stated. Files in other formats will not be marked.

Revision checklists

The tables below can be used as a revision checklist: **It doesn't contain all the detailed knowledge you need to know, just an overview**. For more detail see the syllabus and talk to your teacher.

The table headings are explained below:

Topic	You should be able to demonstrate knowledge and understanding of:	R	A	G	Comments
These are the units of study that you will be learning about.	The content of this column explains what you need to be able to do and the content of the syllabus you need to cover before the examinations.	You can use the tick boxes to show when you have revised an item and how confident you feel about it. R = RED means you are really unsure and lack confidence; you might want to focus your revision here and possibly talk to your teacher for help A = AMBER means you are reasonably confident but need some extra practice G = GREEN means you are very confident. As your revision progresses, you can concentrate on the RED and AMBER items in order to turn them into GREEN items. You might find it helpful to highlight each topic in red, orange or green to help you prioritise.			You can use this column to: • add more information about the details for each point • add formulae or notes • include a reference to a useful resource • highlight areas of difficulty or things that you need to talk to your teacher about or look up in a textbook.

Note: please check the syllabus content to make sure you have covered all the topics.

Paper 1

Topic	You should be able to demonstrate knowledge and understanding of:	R	A	G	Comments
Data processing and information	Data and information	☐	☐	☐	
	Quality of information	☐	☐	☐	
	Encryption	☐	☐	☐	
	Checking the accuracy of data	☐	☐	☐	
	Data processing	☐	☐	☐	
Hardware and software	Mainframe computers and supercomputers	☐	☐	☐	
	System software	☐	☐	☐	
	Utility software	☐	☐	☐	
	Custom written software and off-the-shelf software	☐	☐	☐	
	User interfaces	☐	☐	☐	
Monitoring and control	Monitoring technologies	☐	☐	☐	
	Control technologies	☐	☐	☐	
Algorithms and flow charts	Algorithms	☐	☐	☐	
	Flowcharts	☐	☐	☐	
eSecurity	Personal data	☐	☐	☐	
	Malware	☐	☐	☐	
The digital divide	What the digital divide is	☐	☐	☐	

Topic	You should be able to demonstrate knowledge and understanding of:	R	A	G	Comments
	Causes and effects of the digital divide	☐	☐	☐	
	Reducing the effects of the digital divide	☐	☐	☐	
Expert systems	How expert systems are used to produce possible solutions for different scenarios	☐	☐	☐	
Spreadsheets	Creating/using a spreadsheet	☐	☐	☐	
	Automating operations with a spreadsheet	☐	☐	☐	
	The use of Graphs and charts	☐	☐	☐	
Modelling and simulations	Modelling	☐	☐	☐	
	Simulations	☐	☐	☐	
Database and file concepts	The three relationships	☐	☐	☐	
	The normalisation of data	☐	☐	☐	
	Data dictionaries	☐	☐	☐	
	Query selection	☐	☐	☐	
	File and data management	☐	☐	☐	
Sound and video editing	Sound editing	☐	☐	☐	
	Video editing	☐	☐	☐	

Paper 2 - Practical

Candidates apply knowledge and understanding from sections 1–7 of the subject content and skills from sections 8 -11.

Topic	You should be able to demonstrate knowledge and understanding of:	R	A	G	Comments
Spreadsheets	Create page/screen structures to meet the requirements of an audience and/or task specification/house style	☐	☐	☐	
	Create formulae and use functions	☐	☐	☐	
	Use validation rules	☐	☐	☐	
	Extract data	☐	☐	☐	
	Sort data	☐	☐	☐	
	Summarise and display data using pivot tables and pivot charts	☐	☐	☐	
	Import and export data	☐	☐	☐	
	Create macros	☐	☐	☐	
Modelling and simulations	Create and apply a test plan to test a spreadsheet model	☐	☐	☐	
	Use What-if analysis including Goal Seek	☐	☐	☐	
	Create and run simulations	☐	☐	☐	
Database and file concepts	Identify different data types	☐	☐	☐	
	Create a data dictionary and select appropriate data types and field sizes for a given set of data and a given situation	☐	☐	☐	
	Create and interpret an entity relationship diagram	☐	☐	☐	
	Normalise a database	☐	☐	☐	
	Create a relational database	☐	☐	☐	

Topic	You should be able to demonstrate knowledge and understanding of:	R	A	G	Comments
	Import data	☐	☐	☐	
	Validate and verify data entry	☐	☐	☐	
	Sort data	☐	☐	☐	
	Design and create an appropriate data entry form	☐	☐	☐	
	Perform searches	☐	☐	☐	
	Use static and dynamic parameters in a query	☐	☐	☐	
	Use complex, nested and summary queries	☐	☐	☐	
	Use arithmetic operations, numeric, date and logical functions to perform calculations	☐	☐	☐	
	Create reports to meet the requirements of an audience and/or task specification/house style	☐	☐	☐	
	Export data	☐	☐	☐	
	Design and create a switchboard/menu	☐	☐	☐	
Sound and video editing	Edit a sound clip to meet the requirements of its intended application and audience	☐	☐	☐	
	Edit a video clip to meet the requirements of its intended application and audience	☐	☐	☐	

Paper 3

Topic	You should be able to demonstrate knowledge and understanding of:	R	A	G	Comments
IT in society	Digital currencies	☐	☐	☐	
	Data mining	☐	☐	☐	
	Social networking services/platforms	☐	☐	☐	
	The impact of IT	☐	☐	☐	
	Technology enhanced learning	☐	☐	☐	
New and emerging technologies	Types of new and emerging technologies	☐	☐	☐	
	The impact of new and emerging technologies	☐	☐	☐	
Communications technology	Networks	☐	☐	☐	
	Components in a network	☐	☐	☐	
	Network servers	☐	☐	☐	
	Cloud computing	☐	☐	☐	
	Data transmission across networks	☐	☐	☐	
	Routing data in networks	☐	☐	☐	
	Network protocols	☐	☐	☐	
	The management of network traffic	☐	☐	☐	
	Data transmission methods	☐	☐	☐	
	Wireless technology	☐	☐	☐	

You should be able to	Ways to practise skills	R	A	G	Comments
	Mobile communication systems	☐	☐	☐	
	Network security	☐	☐	☐	
	Disaster recovery management	☐	☐	☐	
Project management	The stages of the project life cycle	☐	☐	☐	
	Project management software	☐	☐	☐	
	Tools and techniques for project management tasks	☐	☐	☐	
System life cycle	The stages in the system life cycle	☐	☐	☐	
	Analysis	☐	☐	☐	
	Design	☐	☐	☐	
	Development and testing	☐	☐	☐	
	Implementation	☐	☐	☐	
	Documentation	☐	☐	☐	
	Evaluation	☐	☐	☐	
	Maintenance	☐	☐	☐	
	Prototyping	☐	☐	☐	
	Methods of software development	☐	☐	☐	
Mail merge	The use of mail merge to create batch documents	☐	☐	☐	
	Linking Data Sources	☐	☐	☐	

You should be able to	Ways to practise skills	R	A	G	Comments
	Defining Merge Fields	☐	☐	☐	
	Specifying rules and conditions	☐	☐	☐	
	Merge and export options	☐	☐	☐	
Graphics creation	The properties of different colour systems	☐	☐	☐	
	The need for different image resolutions	☐	☐	☐	
	The characteristics of different bitmap and vector file formats	☐	☐	☐	
	The effects of different methods of compression on images	☐	☐	☐	
	The basic principles of animation	☐	☐	☐	
	Different animation types and methods	☐	☐	☐	
	The use of animation variables when creating animations	☐	☐	☐	
Programming for the web	The structure and syntax of JavaScript code	☐	☐	☐	
	A range of object-based JavaScript programming techniques and terms	☐	☐	☐	

Paper 4 – Advanced Practical

Candidates apply knowledge and understanding of all subject content and demonstrate skills from sections 17-20 plus skills from sections 8-10 within a problem-solving context.

You should be able to	Ways to practise skills	R	A	G	Comments
Mail merge	Use/create/edit source data using appropriate software	☐	☐	☐	
	Create a master document structure	☐	☐	☐	
	Link a master document to a source file	☐	☐	☐	

You should be able to	Ways to practise skills	R	A	G	Comments
	Specify rules for selecting recipients and for managing document content Set up fields for manual or automatic completion Use calculated fields Use manual methods and software tools to ensure error-free accuracy Perform a mail merge	☐	☐	☐	
Graphics creation	Use common graphic techniques to meet the requirements of an intended application and audience including: • Vector graphic techniques • Bitmap graphic techniques	☐	☐	☐	
Animation	Create an animation (stop motion and key frame) to meet the requirements of an intended application and audience	☐	☐	☐	
Programming for the web	*It is recommended that for this section of the syllabus, candidates should have a working knowledge of html and css, (for example, have studied website authoring in Cambridge IGCSE Information and Communication Technology, syllabus 0417).* Use JavaScript to: • add interactivity to web pages • change HTML content • change HTML styles • show/hide HTML elements • display data in different ways • react to common HTML Events • provide user interaction.	☐	☐	☐	

Section 7: Useful websites

The websites listed below are useful resources to help you study for your Cambridge International AS and A Level Information Technology

Remember, it is worth visiting the GCSE and IGCSE revision sites when you start to study or revise many of the topics. These sites are often the best way to review the basics of a topic since they are usually very clear about the fundamentals and will help to build your foundation for more advanced study.

There is also a fair bit of overlap in the content of Computer Studies and Computer Science courses, especially for AS and A Level study.

These GCSE and IGCSE sites are well worth a look. Don't worry if the site seems to be for a specific exam board – any coverage of a topic will be relevant.

https://www.bbc.co.uk/bitesize/subjects
The GCSE ICT and the GCSE Computing pages are very good places to start. It is easy to find the topics you are interested in and the content is very clear.

https://revisionworld.com/gcse-revision/ict and https://www.gcse.com/ict/
These sites only purport to cover GCSE level, but some of the topics are covered to a much higher level and are well worth a look.

https://www.teach-ict.com/
A very comprehensive site that covers all levels of study. Don't worry about the examination board – the content is extensive and almost all you'll ever need is covered. Each topic is very well structured, and the information is concise and easy to understand.

https://www.thestudentroom.co.uk/g/resources?q=&level_id%5B%5D=a2&level_id%5B%5D=as&subject_id%5B%5D=ict
You'll have to register to access all the resources, but it's free and there is a lot of general help on all aspects of being a student.

https://www.computerhope.com
A vast collection of topics for Computer Science and ICT – use the Dictionary link to search for information on topics and follow the "Related data pages" and the "Also see" links.

https://www.open.edu/openlearn/science-maths-technology/computing-and-ict
A lot of content beyond A level but the basics of a lot of relevant topics are all covered very clearly. The "Most popular" tab is a good place to start and you can search for free ICT courses in the banner.

Finally, there are lots of very good school ICT revision and study sites that are free to view. We can't list them here but a simple internet search for something like "ICT revision" will list a lot of sites.

It is worth revising a topic using more than one source. The differences in approach and structure will make you really focus on the essentials and reinforce your understanding of the topic.

Good luck and enjoy your studies!

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