

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Question	Mark
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TOTAL	



General Certificate of Secondary Education  
June 2013

# Information and Communication Technology (Full Course)

**45201**

## Unit 1 Systems and Applications in ICT

Thursday 6 June 2013 9.00 am to 10.30 am

You will need no other materials.  
You may use a calculator.

### Time allowed

- 1 hour 30 minutes

### Instructions

- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **fourteen** questions in total.
- Answer **all** questions in Sections A and B. In Section C answer **either** Question 14 **or** Question 15, which should be answered in continuous prose. In this question you will be marked on your ability to:
  - use good English
  - organise information clearly
  - use specialist vocabulary where appropriate.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

### Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 120.



J U N 1 3 4 5 2 0 1 0 1

**Section A**

Answer **all** questions in the spaces provided.

- |          |                          |                             |
|----------|--------------------------|-----------------------------|
| <b>1</b> | <b>A</b> CD-RW drive     | <b>I</b> Plotter            |
|          | <b>B</b> Flash memory    | <b>J</b> RAM                |
|          | <b>C</b> Hard disk drive | <b>K</b> Smart mobile phone |
|          | <b>D</b> LAN             | <b>L</b> Software           |
|          | <b>E</b> Laser printer   | <b>M</b> Speaker            |
|          | <b>F</b> Modem           | <b>N</b> Touch screen       |
|          | <b>G</b> Mouse           | <b>O</b> Tracker ball       |
|          | <b>H</b> Netbook         | <b>P</b> WAN                |

Choose your answers from the **list given above**.

Write the letter for your answer in the box or boxes given.

- 1 (a)** Give **three** of the above that are input devices.

Answers

(3 marks)

- 1 (b)** Give **two** of the above that are output devices.

Answers

(2 marks)

- 1 (c)** Give **two** of the above that are backing storage devices.

Answers

(2 marks)

- 1 (d)** Give **two** of the above that are mobile digital devices.

Answers

(2 marks)

- 1 (e)** Give **one** of the above that is a volatile type of memory.

Answer

(1 mark)

- 1 (f)** Give **one** of the above that describes a communications network such as the Internet.

Answer

(1 mark)

11
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**2 (a)** For each row of the table below, choose the letter from **A, B, C, D, E, F** or **G** which best matches the description.

- |          |                      |          |              |
|----------|----------------------|----------|--------------|
| <b>A</b> | Bar code reader      | <b>E</b> | OMR reader   |
| <b>B</b> | Biometrics           | <b>F</b> | Online forms |
| <b>C</b> | Chip and pin         | <b>G</b> | RFID tags    |
| <b>D</b> | Magnetic stripe card |          |              |

	Description	Letter
(i)	Used to read a small image of lines (bars) and spaces on products in a supermarket	<input type="checkbox"/>
(ii)	Uses a four digit code as part of the method of cardholder verification at the point-of-sale	<input type="checkbox"/>
(iii)	Technologies that measure and analyse human body characteristics, such as DNA, fingerprints, eye retinas and irises, voice patterns, facial patterns and hand measurements, for authentication purposes.	<input type="checkbox"/>

(3 marks)

**2 (b)** In the space below, add **three** more **suitable** fields to the data capture form for people applying to join AQA Leisure Centre. Care should be taken to include enough space to fill in the details.

## AQA Leisure Centre

Last name            \_\_\_\_\_

First name            \_\_\_\_\_

Address 1            \_\_\_\_\_

Address 2            \_\_\_\_\_

Address 3            \_\_\_\_\_

Postcode            \_\_\_\_\_

(3 marks)

6

Turn over ▶



**3 (a)** People are becoming increasingly aware of potential health problems that can arise as a result of using ICT equipment for long periods of time.

Give **two** potential health problems that could occur as a result of people using ICT equipment for long periods of time. For each one, give **one** step that can be taken to help overcome or minimise it.

Health problem 1 .....

Step .....

.....

Health problem 2 .....

Step .....

.....

(4 marks)

**3 (b)** There is also a range of **physical** safety issues related to people using ICT equipment in the work place. One possible physical safety issue is the risk of falling over loose wires left trailing on the floor.

Give **two** other potential **physical** safety issues. For each one, give **one** step that can be taken to help overcome or minimise it.

Safety issue 1 .....

Step .....

.....

Safety issue 2 .....

Step .....

.....

(4 marks)

8



4 (a) In each part of this question, which term **best** matches the definitions given?

- |                           |                            |
|---------------------------|----------------------------|
| <b>A</b> Actuator         | <b>F</b> Mouse             |
| <b>B</b> Calibrate        | <b>G</b> Period of logging |
| <b>C</b> Data logging     | <b>H</b> Printer           |
| <b>D</b> Feedback         | <b>I</b> Sensor            |
| <b>E</b> Logging interval |                            |

Choose your answers from the **list given above**.

Write the letter for your answer in the box given.

4 (a) (i) An input device used to measure environmental conditions.

Answer

(1 mark)

4 (a) (ii) The collecting and storing of data at regular fixed intervals over a period of time.

Answer

(1 mark)

4 (a) (iii) The time between one reading being taken and the next reading being taken.

Answer

(1 mark)

4 (b) (i) Give **two advantages** of computerised data logging rather than logging data manually.

Advantage 1 .....

Advantage 2 .....

(2 marks)

4 (b) (ii) Give **one disadvantage** of computerised data logging rather than logging data manually.

.....

(1 mark)

6

Turn over ▶



- 5 Some of the stages of the system life cycle have been labelled **A** to **F** in the table below.

Label	Stage
<b>A</b>	Analysis
<b>B</b>	Design
<b>C</b>	Evaluation
<b>D</b>	Feasibility study
<b>E</b>	Implementation
<b>F</b>	Maintenance

- 5 (a) Write down the labels to show the order in which these stages occur.

Label

(3 marks)

- 5 (b) Tick **two** boxes to show which of the following **best** describe the steps that take place during the testing stage of the system life cycle.

	Tick <b>two</b> boxes only
Data from the test plan are input to check the system works as expected	<input type="checkbox"/>
Desired outcomes and performance criteria are created	<input type="checkbox"/>
The actual outcomes are compared with the expected results in the test plan	<input type="checkbox"/>
The test plan is created	<input type="checkbox"/>
The test plan is evaluated against the performance criteria	<input type="checkbox"/>

(2 marks)



5 (c) Name **one** other stage in the system life cycle that has **not** already been given in the question.

.....  
(1 mark)

5 (d) Name **one** method of collecting information during the feasibility study.

.....  
(1 mark)

7

6 (a) Reading fiction on electronic devices, such as e-book readers, has become increasingly popular over the last few years. Many people now prefer reading e-books to traditional paper books.

6 (a) (i) Give **two advantages** to people of using e-book readers to read fiction, rather than reading paper books.

Advantage 1 .....

Advantage 2 .....

(2 marks)

6 (a) (ii) Give **one disadvantage** to people of using e-book readers to read fiction, rather than reading paper books.

.....  
.....

(1 mark)

**Question 6 continues on the next page**

**Turn over ▶**



**6 (b)** In recent years, wikis have become an increasingly popular source of information.

**6 (b) (i)** Tick **one** box to show which of the following **best** describes what is meant by a wiki.

	Tick <b>one</b> box only
A website where the content is never updated	<input type="checkbox"/>
A website where the content is updated on the first day of every month	<input type="checkbox"/>
A website where the creator is the only person who can add, modify, or delete its content	<input type="checkbox"/>
A website where users can add, modify, or delete its content	<input type="checkbox"/>

(1 mark)

**6 (b) (ii)** Give **one** reason why people should be careful about using the content of a wiki for research.

.....

.....

(1 mark)

**6 (c)** Podcasts are another possible source of information.

Describe what is meant by a podcast.

.....

.....

.....

(2 marks)

7
---

**7** Word processing and DTP are two of the most common pieces of software used today. Below is a list of documents that are usually produced using word processing or DTP software.

- |           |          |
|-----------|----------|
| Catalogue | Magazine |
| Essay     | Letter   |
| Poster    | Memo     |

**7 (a) (i)** From the list given above, give **two** of the documents that you would expect to be produced using word processing software.

Document 1 ..... Document 2 .....

(1 mark)





7 (a) (ii) Give **one** reason why word processing software would be suitable for producing these documents.

.....  
.....

(1 mark)

7 (b) (i) From the list given opposite, give **two** of the documents that you would expect to be produced using DTP software.

Document 1 ..... Document 2 .....

(1 mark)

7 (b) (ii) Give **one** reason why DTP software would be suitable for producing these documents.

.....  
.....

(1 mark)

7 (c) Mail merging is used with both word processing and DTP software.

Explain what is meant by *mail merging*.

.....  
.....

(2 marks)

7 (d) Presentation software is another piece of software that is in common use today.

Tick **two** boxes to show which of the following are important features of presentation software.

	Tick <b>two</b> boxes only
Drop down lists	<input type="checkbox"/>
Merging cells	<input type="checkbox"/>
Slide transition	<input type="checkbox"/>
Timing	<input type="checkbox"/>
Use of formulae	<input type="checkbox"/>

(2 marks)

8
---

Turn over ▶



8 When working on a computer, problems or errors sometimes occur.

Briefly describe what is meant by each of the problems below and how you would try to fix the problem.

8 (a) Problem 1 - Storage full .....

.....

How to fix the problem 1 .....

.....

(2 marks)

8 (b) Problem 2 - Software freeze .....

.....

How to fix the problem 2 .....

.....

(2 marks)

4
---

9 (a) The Computer Misuse Act was introduced in August 1990.

Tick **one** box that **best** outlines the result of this Act becoming law.

	Tick <b>one</b> box only
Hacking breaks the Data Protection Act and is a criminal offence	<input type="checkbox"/>
Hacking and the breaking of copyright on images are criminal offences	<input type="checkbox"/>
Hacking and the introduction of viruses are criminal offences	<input type="checkbox"/>
The introduction of viruses and the plagiarism of other people's work are criminal offences	<input type="checkbox"/>

(1 mark)

9 (b) (i) Describe what is meant by the term *hacking*.

.....

.....

(2 marks)



**9 (b) (ii)** Give **one** precaution that could be taken in order to protect against hacking.

.....  
.....

(1 mark)

**9 (c) (i)** Tick **one** box that best describes how **all** computer viruses behave.

	Tick <b>one</b> box only
It changes all the data stored in a computer	<input type="checkbox"/>
It is always caught from other computers	<input type="checkbox"/>
It replicates itself between and within computers	<input type="checkbox"/>
It steals copies of all of the data stored in a computer	<input type="checkbox"/>

(1 mark)

**9 (c) (ii)** Give **one** common way for a computer virus to get into a home computer system.

.....  
.....

(1 mark)

**9 (c) (iii)** Give **one** measure that could be taken in order to protect against a virus.

.....  
.....

(1 mark)

**9 (d)** Give **one** example of how computer users may sometimes break copyright law.

.....  
.....

(1 mark)

8
---

Turn over ▶



**10** Staff at a university in the United Kingdom use video conferencing facilities to work on a collaborative research project with staff from a university in Australia.

**10 (a)** Tick **one** box to show which of the following is an essential part of a successful video conferencing setup.

	Tick <b>one</b> box only
A dial-up modem connection	<input type="checkbox"/>
A fast broadband connection	<input type="checkbox"/>
A fast colour printer	<input type="checkbox"/>
A word processing package	<input type="checkbox"/>

(1 mark)

**10 (b)** Give **one advantage** and **one disadvantage** to the staff at the universities of using video conferencing rather than e-mail for this collaborative project.

Advantage .....

.....

Disadvantage .....

.....

(2 marks)

**10 (c)** Tick **one** box to show which of the following **best** describes what is meant by collaborative working.

	Tick <b>one</b> box only
Two or more people working together in different countries	<input type="checkbox"/>
Two or more people working together towards a common target	<input type="checkbox"/>
Two or more people working together not using computers	<input type="checkbox"/>
Two or more people working together using only computers	<input type="checkbox"/>

(1 mark)



**10 (d)** Give **one** advantage to the staff at the universities of taking part in a collaborative research project, rather than working on individual projects.

.....  
.....

(1 mark)

**10 (e)** On some days, the staff work at home rather than going into the university.

Give **one advantage** and **one disadvantage** to the staff of working from home rather than going into the university.

Advantage .....

Disadvantage .....

(2 marks)

7

**Turn over for the next Section**

**Turn over ▶**



**Section B**

Answer **all** questions in the spaces provided.

- 11** A school has decided to store the year 11 mock examination results in a database. Part of the database that was created is shown below.

Student name	Candidate number	Registration group	Gender	English mark (0-100)	Maths mark (0-100)
Ali Memoona	0001	11TJ	F	67	9
Ali Nasir	0002	11AN	M	45	78
Allen Jon	0003	11BJ	M	92	101
Angell Adam	0004	11NH	M	-2	41
Aziz Asima	0005	11AN	D	23	45
Baker Ann		11PK	F	19	53
Ball Jordan	0007	11AS	M	83	64
Brown Lauren	0008	11AS	F	77	19
Brown Lauren	0009	11BJ	F	59	29
Bulmer Peter	0010	11TJ	M	30	84

- 11 (a)** This database contains several errors because data validation was not used.

Describe what is meant by *data validation*.

.....  
 .....  
 .....

(2 marks)

- 11 (b) (i)** There is an error in the **Candidate number** field.

State what the error is.

.....

(1 mark)



**11 (b) (ii)** Tick **one** box to show which of the following would be the **best** method of data validation to reduce the possibility of this kind of error happening again.

	Tick <b>one</b> box only
Check digits	<input type="checkbox"/>
Look-up list	<input type="checkbox"/>
Presence check	<input type="checkbox"/>
Type check	<input type="checkbox"/>

(1 mark)

**11 (c)** There is also an error in the **Gender** field.

Tick **one** box to show which of the following would be the **best** method of data validation to reduce the possibility of this kind of error happening again.

	Tick <b>one</b> box only
Check digits	<input type="checkbox"/>
Look-up list	<input type="checkbox"/>
Presence check	<input type="checkbox"/>
Type check	<input type="checkbox"/>

(1 mark)

**11 (d)** Errors have been made in the **English mark** and the **Maths mark** fields.

Describe a suitable method of data validation that could be used to reduce the possibility of this kind of error happening again.

.....

.....

.....

(2 marks)

Turn over ►







**12 (b)** Give **two disadvantages** to the **customer** of ordering their groceries online compared to shopping at the supermarket.

Disadvantage 1 .....

.....

Disadvantage 2 .....

.....

(2 marks)

**12 (c) (i)** When a customer visits the supermarket’s website to order groceries, a cookie is usually created.

Tick **one** box to show which of the following **best** describes what a cookie is.

	Tick <b>one</b> box only
An application that sends an invoice to the customer	<input type="checkbox"/>
A program used to detect hackers	<input type="checkbox"/>
A series of pictures of the supermarket	<input type="checkbox"/>
A small text file	<input type="checkbox"/>

(1 mark)

**12 (c) (ii)** Where is a cookie normally stored?

.....

.....

(2 marks)

**12 (c) (iii)** Some customers regularly block cookies.

Give **one** reason why a customer may not want to allow the supermarket’s cookie.

.....

.....

(1 mark)

Turn over ▶





13 The headteacher of a school has asked the student Year Book committee to produce a spreadsheet showing the cost of producing next summer's year book. She has asked to see the spreadsheet before any work on the Year Book starts. The committee's first attempt is shown below.

	A	B	C	D
1	<b>Yer book 2013</b>			
2				
3	Estimated number of Year Books that w	160		
4	Estimate number of Year books to print	200		
5				
6	Costs	Per book	Total	
7	Printing costs	£5.00	£1,000.00	
8	Professional photographer		£600.00	
9	Cost of artwork for the front cover		£150.00	
10	Early sample pages -printed at school		£100.00	
11				
12	Total costs		£1,850.00	
13				
14	Income	Per book	Total	
15	Sale of Year Books	£7.00	£1,120.00	
16	Adverts put in Year book		£500.00	
17	Donations		£210.00	
18				
19	Total income		£1,830.00	
20				
21	Profit/Loss		-£20.00	
22				

13 (a) Give **two** reasons why the spreadsheet given above is **not** ready to be shown to the headteacher.

Reason 1 .....

.....

Reason 2 .....

.....

(2 marks)

13 (b) Without repeating answers from part (a), give **two** ways in which the students could improve the presentation of the spreadsheet.

1 .....

.....

2 .....

.....

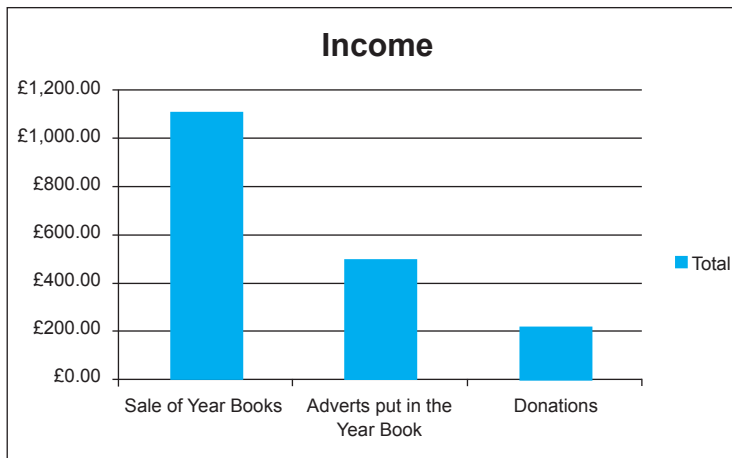
(2 marks)

Turn over ▶

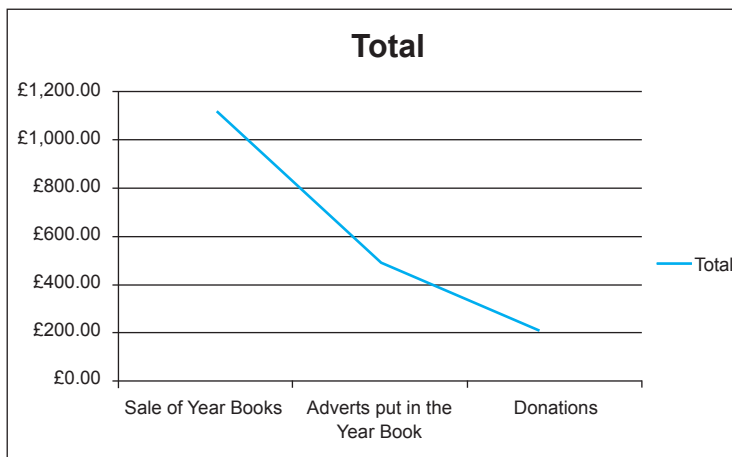


13 (c) Below are two graphs that the students have produced to show the income from the Year Book.

Graph A



Graph B



13 (c) (i) Name the type of graph produced in **Graph A**.

..... (1 mark)

13 (c) (ii) Give **two** reasons why the students should show **Graph A** to the headteacher rather than **Graph B**?

Reason 1 .....

Reason 2 .....

(2 marks)





**Section C**

You should answer **either** Question 14 **or** Question 15, but **not** both.  
You will be marked on your ability to use good English, to organise information clearly and to use specialist vocabulary where appropriate.

**Either**

14 Describe how ICT can help the monitoring and managing of sustainable resources and recycling.

*This space is available for planning your answer, if you wish to use it.*

.....

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Turn over ▶







**Or**

**15** Discuss possible advantages and disadvantages of using social networking sites.

*This space is available for planning your answer, if you wish to use it.*

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**Turn over ▶**



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**There are no questions printed on this page**

**DO NOT WRITE ON THIS PAGE  
ANSWER IN THE SPACES PROVIDED**

