

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										



General Certificate of Secondary Education
June 2012

Information and Communication Technology (Full Course)

45201

Unit 1 Systems and applications in ICT

Friday 1 June 2012 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.

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
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10	
11	
12	
13	
14	
15	
TOTAL	



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

Section A

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

1 Computer systems include both hardware and software.

1 (a) Tick **three** boxes to show which of the following are hardware.

	Tick three boxes only
A monochrome laser printer	
A colour laser printer	
A guide to the system instruction manual	
An operating system	
A digital projector	
A podcast	

(3 marks)

1 (b) From the list above, give **one** which is clearly software.

.....
(1 mark)

1 (c) Tick **two** boxes to show which of the following are input devices.

	Tick two boxes only
CD-ROM	
Flash memory	
Plotter	
Scanner	
Speakers	
Web cam	

(2 marks)

1 (d) From the list above, give **one** that is used as a backing store.

.....
(1 mark)



1 (e) Explain why it is important to back up data stored on a computer system.

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(2 marks)

9

Turn over for the next question

Turn over ▶



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

- | | | |
|----------------------|--------------------------|--------------------|
| A Attachments | D E-mail address | G Outbox |
| B Bcc | E Forward e-mails | H Signature |
| C Cc | F Inbox | |

	Description	Letter
(i)	The main folder that stores the e-mails you receive	
(ii)	A block of text that is added to the end of an e-mail message you send	
(iii)	Sending an e-mail message to many people in such a way that it hides the fact that it is being addressed to other people as well	

(3 marks)

2 (b) (i) Tick **two** boxes to show which of these best describes what is meant by junk e-mail (spam).

	Tick two boxes only
E-mails that arrive between midnight and 5.00 am	
E-mails that come from people in your address book	
E-mails that come from people not in your address book	
E-mails that are unwanted and/or not requested	
Identical e-mails that are sent in bulk, often from commercial organisations	

(2 marks)

2 (b) (ii) Give **one** way of managing junk e-mail.

.....

.....

(1 mark)

2 (c) Give **one** reason why phishing e-mails are usually sent.

.....

.....

(1 mark)

7



3 (a) In the space below, complete the design of a data capture form for people applying to become members of a health club. Care should be taken to include suitable fields and enough space to fill in their details.

Mardon Health Club

Surname

Other Name

Address 1

Address 2

(4 marks)

3 (b) Name **two** other methods of data capture that would be suitable for the health club to use to collect this information.

Method 1.....

Method 2.....

(2 marks)

6

Turn over ▶



4 For a year 11 assembly, the Prom committee is preparing a presentation about this year's Prom. The first two slides are shown below.



4 (a) Having looked at these slides, give **two** pieces of advice to the Prom committee about presenting information in a way that is fit for purpose and audience.

Advice 1

.....

Advice 2

.....

(2 marks)

4 (b) Tick **two** boxes to show which of these are common features of presentation software.

	Tick two boxes only
Buttons	<input type="checkbox"/>
Mail merging	<input type="checkbox"/>
Modelling	<input type="checkbox"/>
Sound effects	<input type="checkbox"/>
Use of queries	<input type="checkbox"/>

(2 marks)

4 (c) Describe, using at least **one** example, what is meant by *slide transition*.

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(2 marks)



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

- | | | |
|---------------------|----------------------------|-----------------------------|
| A Analysis | D Feasibility study | G Testing |
| B Design | E Implementation | H User documentation |
| C Evaluation | F Maintenance | |

	Description	Letter
(i)	Uses interviews, questionnaires or observation to gather information about how the present system works	
(ii)	Where the evaluation criteria (desired outcomes and performance criteria) are defined	
(iii)	Where plans for construction and testing of the new system are created	

(3 marks)

5 (b) Below is the structure for the start of the construction of a test plan. The headings **Test number** and **Purpose of the test** have already been included in the plan.

Test number	Purpose of the test	Heading 3	Heading 4

Give a suitable title for **Heading 3** and **Heading 4** and state why each of them is needed.

5 (b) (i) **Heading 3**

Why it is needed

.....

(2 marks)

5 (b) (ii) **Heading 4**

Why it is needed

.....

(2 marks)

Turn over ▶



5 (c) When developing ICT systems, people often work collaboratively.

Describe what is meant by *collaborative working*.

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(2 marks)

9

6 The increasing use of ICT or the lack of ICT can have a great impact on a variety of communities and cultures.

6 (a) People living in remote communities in a developing country often lack any access to ICT.

Tick **two** boxes that show disadvantages of this to these people.

	Tick two boxes only
They will have to choose between buying a car and buying a computer	
They will get very limited information about events in the rest of the world	
They will not be able to start a business	
Those with businesses are likely to have a more restricted market	
Their government will not buy them computers	

(2 marks)

6 (b) In recent years the United Kingdom has seen an increasing use of CCTV in an expanding number of locations. Some people think this 'surveillance society' is a good thing, but others do not.

6 (b) (i) Give **two** advantages to society of the increasing use of CCTV.

Advantage 1.....

.....

.....

Advantage 2.....

.....

.....

(2 marks)



6 (b) (ii) Give **one** disadvantage to society of the increasing use of CCTV.

Disadvantage

.....
.....

(1 mark)

5

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

- | | | |
|-------------------------|----------------------------|-----------------------------|
| A Bulletin board | D Instant messaging | G Video conferencing |
| B Fax | E Sat Nav | H Web log |
| C Forum | F SMS (texting) | |

	Description	Letter
(i)	An online discussion site where people can hold conversations in the form of posted messages. Sometimes these messages need to be approved by a moderator before they become visible on the site.	
(ii)	A document or picture sent from one machine to another machine over a telephone line	
(iii)	A text form of communication, such as a conversation between people over the Internet that happens in real-time	

(3 marks)

7 (b) Increasingly, people are using VoIP (Voice over Internet Protocol) to communicate with their friends and relatives, rather than using the traditional land-based telephone systems. Give **two** advantages to these users of communicating with others using VoIP, rather than using traditional land-based telephone systems.

Advantage 1.....

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.....

Advantage 2.....

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.....

(2 marks)

7 (c) Today most people use a broadband connection to the Internet. Describe briefly what is meant by *a broadband connection*.

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.....

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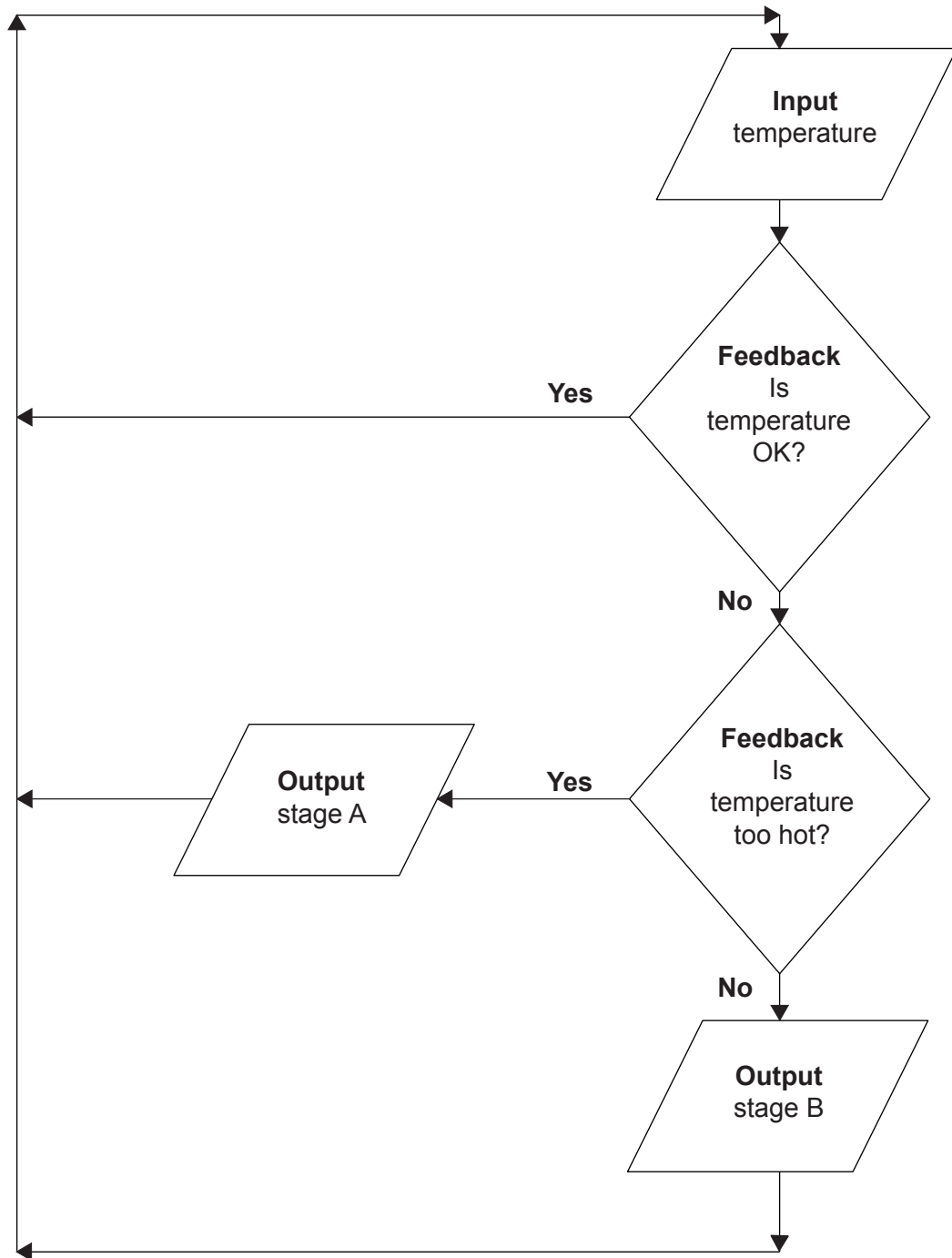
(2 marks)

7

Turn over ▶



8 Mardon Fresh is a company that grows a range of fruit and vegetables in large greenhouses. Each greenhouse uses a control-feedback loop system. A simplified version of this system is shown in the diagram below.



8 (a) What is the purpose of this control-feedback loop system used in the greenhouse?

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(1 mark)



8 (b) (i) Tick **one** box to show which of the following is most likely to be the input device for this system.

	Tick one box only
Thermometer	
Heat sensor	
Motion sensor	
Web cam	

(1 mark)

8 (b) (ii) For the input device you have chosen, give **two** reasons why more than one may be needed in each greenhouse.

Reason 1

.....

Reason 2

.....

(2 marks)

8 (c) Shown on the control-feedback loop system diagram are **Output** stage A and **Output** stage B.

Describe what happens during each of these stages.

Output stage A

.....

.....

Output stage B

.....

.....

(4 marks)

8

Turn over ▶



9 Below is a list of software features that are commonly found in web browsers and search engines.

- | | | |
|--------------------|------------------|----------------------|
| Block 'pop-ups' | Phishing filters | Web/Internet browser |
| Bookmark/Favourite | Refresh | Web/Internet portals |
| Home page | Stop | |
| Navigation | Web address | |

9 (a) Choose the term which **best** matches each description given in the table below. Write your answers in the spaces provided.

	Description	Term which best matches the description
(i)	The opening page of a website	
(ii)	A locally stored record of the address of an Internet page serving as a shortcut to it	
(iii)	A software application for finding, retrieving and displaying resources on the World Wide Web	
(iv)	The update or repaint of a webpage display	

(4 marks)

9 (b) Describe the role of an ISP.

.....

.....

.....

(2 marks)

9 (c) Tick **one** box to show which of the following is the meaning of the commonly used Internet protocol *POP*.

	Tick one box only
Primary Official Protocol	
Primary Office Protocol	
Post Official Protocol	
Post Office Protocol	

(1 mark)

7



10 Operating systems and user interfaces are essential parts of any computer system.

10 (a) Tick **one** box to show which of the following is **not** a type of operating system.

	Tick one box only
Multi-tasking	
Real time	
Random access	
Multi-user	

(1 mark)

10 (b) (i) Tick **two** boxes to show which of the following are typical features of a Graphical User Interface (GUI).

	Tick two boxes only
Encoding data	
The file operations copy and delete	
The file operations save and load	
Use of icons and buttons	
Window operations such as open and close	

(2 marks)

10 (b) (ii) Name **one** other common user interface.

.....
(1 mark)

10 (c) (i) Tick **two** boxes to show which of the following are the most likely to be large files when stored on a computer.

	Tick two boxes only
A year 11 word processed history essay	
A film downloaded from the Internet as a video file	
The details of the top ten films downloaded as a text file	
A spreadsheet used to plan the spending for a family holiday	
Music download	

(2 marks)

Turn over ►



10 (c) (ii) Give **two** reasons for using file compression (zip) when transferring files.

Reason 1

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Reason 2

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(2 marks)

8

Turn to page 16 for the next section



Turn over for the next section

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

Turn over ▶



Section B

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

- 11 The Khan family uses the spreadsheet below to help work out the cost of running a medium-sized family car.

	A	B
1	Estimated cost of running a medium-sized family car for the year 2012	
2		
3	Fixed costs (whatever the mileage)	Cost
4	Road tax	£180.00
5	Insurance	£454.00
6	Depreciation (loss in value)	£1,866.00
7	Breakdown cover	£50.00
8	Total fixed cost per year	£2,550.00
9		
10	Variable costs (varies with the miles travelled)	Cost (p)
11	Petrol per mile	12.31
12	Tyres per mile	1.1
13	Service/repairs per mile	5.5
14	Total cost per mile in pence	18.91
15		
16	Mileage for the year	10,000
17	Total variable cost per year	£1,891.00
18		
19	Total cost of motoring	£4,441.00
20		
21	Average cost per mile of running the car	£0.44

- 11 (a) The cell A4 has been formatted as text.

Tick **one** box to show which word describes the formatting of the data in B4.

	Tick one box only
Currency	<input type="checkbox"/>
Date	<input type="checkbox"/>
Number	<input type="checkbox"/>
Text	<input type="checkbox"/>

(1 mark)



11 (b) Give **three** features that have been used to improve the appearance of the spreadsheet.

Feature 1

Feature 2

Feature 3

(3 marks)

11 (c) (i) The cell B21 uses the ROUND function. Tick **one** box to show which formula has been used in the cell B21.

	Tick one box only
=ROUND(B19/B16),2	
=ROUND(B19/B16,2)	
=ROUND2(B19/B16)	
=ROUND(2,B19/B16)	

(1 mark)

11 (c) (ii) Explain why the ROUND function has been used in this cell.

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(2 marks)

Question 11 continues on the next page

Turn over ▶



11 (d) Describe the features that make a spreadsheet more suitable for working out the cost per mile of running a car, compared with using a database.

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(5 marks)

12

Turn to page 20 for the next question



Turn over for the next question

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

Turn over ▶



12 WebzServz is a company that designs and make websites for other businesses. The staff at WebzServz are affected by several legal and social issues.

12 (a) Tick **two** boxes to show which of the following are responsibilities placed on WebzServz as a data user by the Data Protection Act.

	Tick two boxes only
WebzServz must never store any data under any circumstances	
WebzServz must keep all data accurate and up-to-date	
WebzServz must always keep all data within the UK	
WebzServz must at the request of a data subject always change any data they want to be changed and for any reason	
WebzServz must keep data secure	

(2 marks)

12 (b) The Computer Misuse Act became law in August 1990. Under the Act, hacking and the introduction of viruses are criminal offences.

12 (b) (i) Explain what is meant by hacking.

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(2 marks)

12 (b) (ii) Give **one** measure that can be taken to protect against hackers.

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(1 mark)

12 (b) (iii) Describe what a virus is and the danger it presents.

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(2 marks)



12 (c) What advice would you give to employees about responsible behaviour online?

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(5 marks)

12

Turn over for the next question

Turn over ►



- 13** A hospital keeps information about patients on a database. Part of the database table is shown below.

Patient ID	Patient Name	Date of Birth	Gender	Admission Date	Doctor	Ward Number	Contact Number
00897672	Ali Ahmed	11/11/1950	M	09/06/2012	Iqbal	2	01762 555490
00897725	Chan David	01/12/2000	M	12/06/2012	Bryan	11	01716 123455
00897693	Collins Sarah	23/05/1997	F	10/06/2012	Wilson	3	01762 855489
00897726	Jones Jon	19/06/1992	M	12/06/2012	Bryan	11	01762 773456
00897649	Morgan Peter	15/08/1967	M	05/06/2012	Yau	6	01762 589002
00897711	Rogers Harry	30/07/1851	M	11/06/2012	Bryan	11	01716 125431
00897712	Smith Anna	09/10/1944	F	11/06/2012	Wilson	3	01762 556677
00897601	Smith Anne	31/12/1978	F	01/06/2012	Iqbal	10	01762 856767
00897602	Wilson Katy	10/09/1986	F	04/06/2012	Yau	6	01716 124563

- 13 (a)** Which field has been used to sort this database table into ascending order?

Field used (1 mark)

- 13 (b)** Tick **one** box to show the **Patient ID(s)** found as a result of each of the following searches.

- 13 (b) (i)** Search criteria: **Ward Number** equals 6

Patient ID	Tick one box only
00897649	<input type="checkbox"/>
00897711	<input type="checkbox"/>
00897649 and 00897602	<input type="checkbox"/>
00897711 and 00897602	<input type="checkbox"/>

(1 mark)

- 13 (b) (ii)** Search criteria: **Admission Date** is less than 04/06/2012

Patient ID	Tick one box only
00897601	<input type="checkbox"/>
00897602	<input type="checkbox"/>
00897601 and 00897602	<input type="checkbox"/>
00897649 and 00897602	<input type="checkbox"/>

(1 mark)



13 (b) (iii) Search criteria: **Doctor** equals Iqbal AND **Gender** equals M

Patient ID	Tick one box only
00897601	
00897672	
00897601 and 00897672	
00897649 and 00897672	

(1 mark)

13 (c) The database signals an error when a member of staff tries to enter the yellow highlighted **Date of Birth** for the **Patient Name** Rogers Harry.

13 (c) (i) Give a reason why this **Date of Birth** entry was rejected.

Reason

(1 mark)

13 (c) (ii) Describe a data validation check that has been, or could have been used to find this error.

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(2 marks)

Question 13 continues on the next page

Turn over ▶



13 (d) Describe the advantages and disadvantages for the hospital of using proprietary software, rather than open source software.

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(5 marks)

12



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 Discuss the impact that communications and entertainment technology has had on society.

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

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A large rectangular area containing 25 horizontal dotted lines for writing.

(12 marks)

12



OR

15 Discuss the problems of finding, selecting and using information from a range of sources.

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

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(This area contains 25 horizontal dotted lines for writing.)

(12 marks)

END OF QUESTIONS

12

