

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										



General Certificate of Secondary Education  
June 2011

# Information and Communication Technology (Full Course)

**45201**

**Written Paper**

**Thursday 16 June 2011 1.30 pm to 3.00 pm**

**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.
- 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.
- You are reminded of the need for good English and clear presentation in your answers.

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
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TOTAL	



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**Section A**

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

**1 (a)** Six output devices have been labelled **A** to **F** in the table below.

Label	Name
<b>A</b>	Actuator
<b>B</b>	Digital projector
<b>C</b>	Monitor/screen
<b>D</b>	Plotter
<b>E</b>	Printer
<b>F</b>	Speakers

Write **one** label in each box to name the output device shown.

	Output device	Write <b>one</b> label in each box
(i)		<input type="text"/>
(ii)		<input type="text"/>
(iii)		<input type="text"/>

(3 marks)

Images ©Thinkstock



1 (b) Which **one** of the following is **not** an input device?

- A Bar-code reader
- B CD-ROM
- C Keyboard
- D Mouse

Answer

(1 mark)

1 (c) A wide range of microprocessors is found in most homes. Other than inside a computer, give **two** examples of where microprocessors are likely to be found in the kitchen.

Example 1 .....

Example 2 .....

(2 marks)

1 (d) (i) Tick **two** boxes to show which of the following are mobile devices.

	Tick <b>two</b> boxes only
Desktop computer	<input type="checkbox"/>
File server	<input type="checkbox"/>
Interactive whiteboard	<input type="checkbox"/>
Laptop computer	<input type="checkbox"/>
PDA	<input type="checkbox"/>

(2 marks)

1 (d) (ii) Explain what is meant by the term mobile device.

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 .....  
 .....

(2 marks)

10

Turn over ▶



2 Smart mobile phones, like the one shown below, are becoming increasingly popular.



©Thinkstock

2 (a) Smart mobile phones come with a memory card. Tick **one** box to show which of the following is the most likely storage capacity of this memory card.

	Tick <b>one</b> box only
16 bytes	<input type="checkbox"/>
16 Gigabytes (Gb)	<input type="checkbox"/>
16 Kilobytes (Kb)	<input type="checkbox"/>
16 Megabytes (Mb)	<input type="checkbox"/>

(1 mark)

2 (b) The phone shown above has a built in memory of 256Mb RAM and 512Mb ROM. Explain why both RAM and ROM are needed in this phone.

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(2 marks)

3
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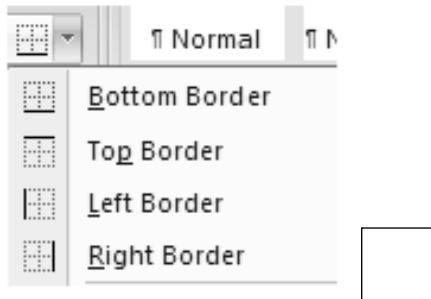


- 3 (a)** Words about Graphical User Interfaces (GUI) have been labelled **A** to **F** in the table below.

Label	Name
<b>A</b>	Button
<b>B</b>	Hotspots
<b>C</b>	Hyperlinks
<b>D</b>	Menu
<b>E</b>	Pointer
<b>F</b>	Toolbar

Write **one** label in each box that names the object shown.

- 3 (a) (i)**



- 3 (a) (ii)** <http://www.aqa.org.uk/>

- 3 (a) (iii)**




(3 marks)

- 3 (b)** The use of windows and window operations are important features of a GUI. The icons below are seen in windows that appear when using a computer. State what the icons shown below are used for.

	Icon	What is this icon used for?
(i)		
(ii)		

(2 marks)

Turn over ►



4 (a) There are concerns, both legal and moral, that must be taken into consideration when using ICT.

Match the correct letters from **A, B, C, D, E** and **F** with the concerns in **(i) – (iii)** in the table given below.

- A** Data Protection Act
- B** Denial of service
- C** Hacking
- D** Phishing
- E** Plagiarism
- F** Viruses

	<b>Concern</b>	<b>Letter</b>
<b>(i)</b>	Gaining unauthorised access to a computer system and changing the data or programs	
<b>(ii)</b>	A student downloading an essay from the Internet and handing it in as their own work	
<b>(iii)</b>	Sending false messages in an attempt to gain user names and passwords from other people	

(3 marks)

4 (b) An increasing number of people spend a long time each day working with computers. This can lead to a range of health issues such as back problems.

Give **two** different steps that can be taken to help these people reduce the risk of back problems.

Step 1 .....

Step 2 .....

(2 marks)

4 (c) Give **two** other health problems that can occur as a result of using a computer for long periods of time each day.

Problem 1 .....

Problem 2 .....

(2 marks)

7
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- 5 (a)** People increasingly use a wide range of **sources** to find information. Match the correct letters from **A, B, C, D, E** and **F** with the best descriptions **(i) – (iii)** in the table given below.

- A** Blog  
**B** CD-ROM  
**C** DVD-ROM  
**D** Online database  
**E** Sat Nav  
**F** Wiki

	Description	Letter
<b>(i)</b>	Electronic equipment which gives you directions by using information it receives from satellites	
<b>(ii)</b>	High capacity, optical storage media used for video and data storage	
<b>(iii)</b>	A website usually maintained by one person. It has regular entries with descriptions of events, often including pictures or videos	

(3 marks)

- 5 (b)** A podcast is a possible source of information. Describe what is meant by a podcast.

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(2 marks)

- 5 (c)** When using a computer to download information, sometimes an error message such as 'storage full' appears.

- 5 (c) (i)** What is meant by the error message 'storage full'?

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(1 mark)

- 5 (c) (ii)** Explain what steps can be taken to download the information needed, if the error message 'storage full' appears.

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(2 marks)

Turn over ▶





**6** A student is experimenting with some of the software packages on her new computer.

**6 (a)** Firstly she tries out the graphics package. Five features of a graphics package have been labelled **A** to **E** in the table below.

Label	Feature
<b>A</b>	Airbrush
<b>B</b>	Brush
<b>C</b>	Curves
<b>D</b>	Layering
<b>E</b>	Repeating pattern

Write **one** label in each box below that names the feature used to produce the image.

	Image	Write <b>one</b> label in each box
<b>(i)</b>		<input type="text"/>
<b>(ii)</b>		<input type="text"/>

(2 marks)








**6 (b)** She then tries out the audio software.

Six features of audio software have been labelled **A** to **F** in the table below.

Label	Feature
<b>A</b>	Fast forward
<b>B</b>	Mute
<b>C</b>	Pause
<b>D</b>	Playlist
<b>E</b>	Start
<b>F</b>	Volume adjustment

Write **one** label in each box below that names the feature used.

	Feature used	Write <b>one</b> label in each box
(i)		<input type="text"/>
(ii)		<input type="text"/>
(iii)		<input type="text"/>

(3 marks)

Turn over ►



**6 (c)** Finally she loads the e-mail software. Tick **one** box to show which of the following best describes what e-mail does.

	Tick <b>one</b> box only
Electronic mail	
Loads messages onto a mobile phone	
Sends messages between computers via the Internet	
Types messages into a word processor	

(1 mark)

**6 (d)** Describe briefly the purpose of these e-mail related terms.

**6 (d) (i)** Mailbox/inbox .....  
.....

**6 (d) (ii)** Cc .....  
.....

**6 (d) (iii)** Attachments .....  
.....

(3 marks)

9
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7 Students at a school in England use video conferencing facilities to work on a collaborative history project with a school in the USA.

7 (a) Tick **two** boxes to show which of the following are needed for video conferencing.

	Tick <b>two</b> boxes only
Broadband connection	
DTP package	
Faster colour printer	
Scanner	
Screen	

(2 marks)

7 (b) (i) Give **two** advantages of using video conferencing for this collaborative project rather than using e-mail.

Advantage 1 .....

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Advantage 2 .....

.....

(2 marks)

7 (b) (ii) Give **one** disadvantage of using video conferencing for this collaborative project rather than using e-mail.

Disadvantage .....

.....

(1 mark)

7 (c) (i) Explain what is meant by collaborative working.

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(2 marks)

Turn over ▶



**7 (c) (ii)** Give **two** advantages to the students at the school of taking part in a collaborative project rather than working on individual projects.

Advantage 1 .....

.....

Advantage 2 .....

.....

(2 marks)

9



8 (a) A school secretary uses a computer to type details about each pupil into a database. Part of the database file for one pupil is shown below.

Pupil ID	Surname	Other Names	Date of Birth	Form
GS0889967	Abbot	Sarah	20/11/1999	7TP

It is important that the information stored is accurate, so data validation is used to help prevent mistakes. From the list given below, choose the best method of data validation to check the information given in the 'Information' column of the table below. Write your answer in the space provided.

- Check digit
- Look-up list
- Presence check
- Range check
- Spelling/grammar check

	Information	Best method of data validation to use on this field
(i)	Pupil ID	
(ii)	Form	
(iii)	Date of Birth	

(3 marks)

8 (b) (i) Data verification is also used to help improve the accuracy of the information input. Name **two** methods of data verification.

Method 1 .....

Method 2 .....

(2 marks)

8 (b) (ii) Describe how **one** of the methods of data verification named above helps to reduce mistakes when data is entered into the database.

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(2 marks)

7
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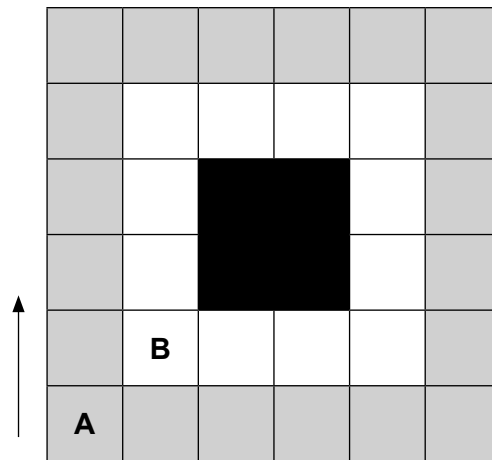
Turn over ▶



9 A company is developing a computer controlled machine to polish floors in offices. The machine polishes the floor as it slowly moves forward. At present the only instructions available are given below.

Instruction list	Movement by the machine
RT90	Turns the machine right through 90 degrees
FDn	Moves the machine forward n units

9 (a) Using only the instructions from the list above, write the set of instructions needed for the machine to polish the part of the floor shaded in grey. The machine starts in the square marked A and, to start with, will move in the direction shown by the arrow in the diagram.



**Instructions**

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(2 marks)



9 (b) The company is planning to develop the new instructions shown below.

Instruction list	Movement by the machine
RP4	Repeats 4 times all the instructions given before the END instruction
END	Marks the end of the instructions to be repeated

Using these new instructions and the two instructions given earlier, write a more efficient set of instructions to polish the same area shaded in grey. Again the machine starts in the square marked A and, to start with, will move in the direction shown by the arrow in the diagram.

**Instructions**

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(2 marks)

9 (c) After polishing the area shaded grey, the machine moves to the square marked B facing the same direction as shown by the arrow in the diagram. It then polishes the remaining part of the floor shown in white.

Using only the instructions given earlier, write an efficient instruction set for the machine to move to square B and polish the area shown in white.

**Instructions**

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(3 marks)

7
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Turn over ▶



**10** The choice of operating system is an important decision when buying or setting up any new ICT system.

**10 (a) (i)** Which **one** of the following is a task that would be carried out by an operating system?

	Tick <b>one</b> box only
Connecting to the Internet	
Importing a logo into a DTP package	
Producing graphs from a database	
Transferring data to a printer	

(1 mark)

**10 (a) (ii)** Which **one** of the following is not a common type of operating system?

	Tick <b>one</b> box only
Multi-tasking	
Multi-user	
Real time	
Relational user	

(1 mark)

**10 (b)** Operating systems are sometimes involved in the process of preventing unauthorised access to a computer system. One way to do this is by using a password.

**10 (b) (i)** What is meant by the term password?

.....  
 .....

(1 mark)

**10 (b) (ii)** Give **two** features of a strong password.

Feature 1 .....

.....

Feature 2 .....

.....

(2 marks)





**10 (c)** Many commercial organisations such as banks, also use a range of other authentication methods. Describe how **one** of these is used to prevent unauthorised access.

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(2 marks)

<b>7</b>

**Turn over for Section B**

**Turn over ▶**



**Section B**

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

- 11** The finance officer uses a spreadsheet to plan a budget for the school production of 'Grease'. The first plans are shown below.

	A	B	C	D
1	<b>Grease</b>			
2				
3				
4	<b>Planned Spending</b>			
5		<b>Cost per night</b>	<b>No. of nights</b>	<b>Cost</b>
6	Licence to perform	£125.00	3	£375.00
7	Costume hire	£200.00	3	£600.00
8	Props to hire	£110.00	3	£330.00
9	Printing Tickets	£35.00	3	£105.00
10	Cost of refreshments	£50.00	3	£150.00
11	Advertising			£250.00
12	Total of other small costs			£125.00
13	<b>Total spending</b>			£1,935.00
14				
15	<b>Planned Income</b>			
16	Price of ticket	£1.75		
17	Refreshments (per person)	£0.50		
18				
19		<b>Per night</b>	<b>No. of nights</b>	<b>Income</b>
20	Ticket sales	300	3	£1,575.00
21	Sale of refreshments	150	3	£225.00
22	<b>Total income</b>			£1,800.00
23				
24	<b>Profit/loss</b>			<b>-£135.00</b>
25				

- 11 (a)** The title 'Grease' has not been fully displayed. Tick **one** box to show which of the following would be the best way to fully display the title.

	Tick <b>one</b> box only
Make row 2 higher	
Make row 2 wider	
Make the size of the text in row 2, 2 point	
Make the colour of the text in row 2, red	

(1 mark)



11 (b) The cells in a spreadsheet can be formatted in a number of different ways.

Name **one** cell that has been formatted as number.

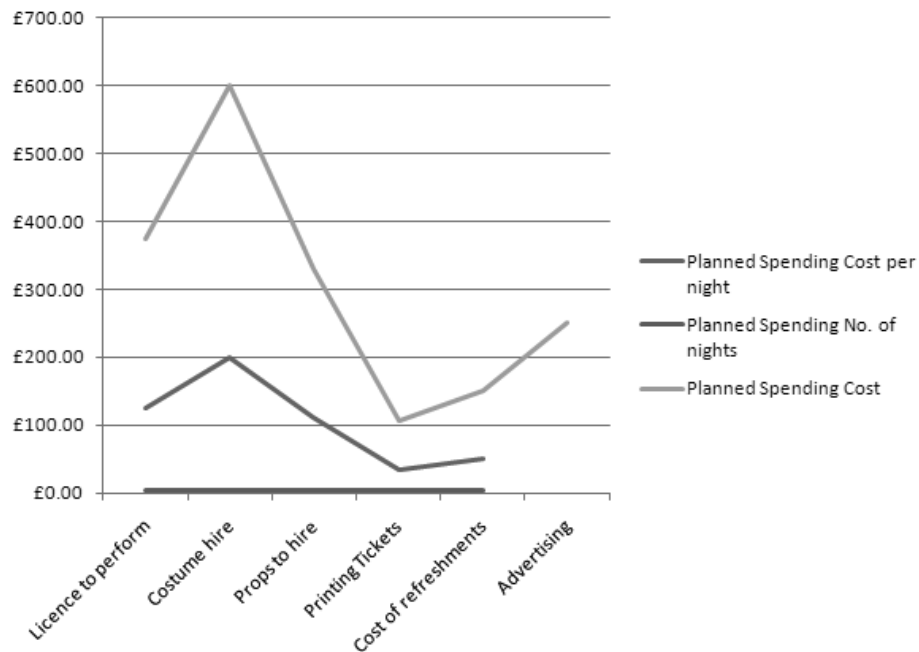
(1 mark)

11 (c) Which **one** of the following is the formula used in highlighted cell D24?

	Tick <b>one</b> box only
=D22+D13	<input type="checkbox"/>
=D13+D22	<input type="checkbox"/>
=D13-D22	<input type="checkbox"/>
=D22-D13	<input type="checkbox"/>

(1 mark)

11 (d) The finance officer uses this spreadsheet to produce the graph below showing the planned spending costs.



11 (d) (i) Which type of graph has been produced? .....

(1 mark)

Turn over ▶



**11 (d) (ii)** Explain why the finance officer might not find this graph very useful.

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 .....  
 .....

(2 marks)

**11 (d) (iii)** Name **one** other more suitable type of graph or chart that could be used to display this information.

More suitable type of graph or chart .....

(1 mark)

**11 (e)** An aim of putting on the production was to raise at least £1000 for charity. Explain, giving examples, ways in which the software could be used as a model to answer 'what if' questions and show ways in which £1000 profit could be made.

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(5 marks)



**12 (a)** A family are planning a last minute summer holiday. They use the Internet to find details of holidays that are still available leaving on Saturday 2<sup>nd</sup> July or Sunday 3<sup>rd</sup> July from Manchester. The result of the search from one travel company's website is shown in the database table below.

Booking code	Country	Resort	Date of Departure	No. of nights	Hotel	Cost per adult (£)	Included in the price
CR0005	Croatia	Dubrovnik	2 <sup>nd</sup> July	7	3 star	585	Breakfast
CR0023	Croatia	Korcula	3 <sup>rd</sup> July	7	2 star	565	Half board
EG0098	Egypt	El Gouna	3 <sup>rd</sup> July	7	2 star	465	Room only
EG0003	Egypt	El Gouna	2 <sup>nd</sup> July	14	3 star	865	All inclusive
EG0132	Egypt	Luxor	3 <sup>rd</sup> July	7	4 star	695	Half board
GR0034	Greece	Corfu	2 <sup>nd</sup> July	7	2 star	399	Breakfast
GR0234	Greece	Corfu	3 <sup>rd</sup> July	14	3 star	665	Breakfast
GR0111	Greece	Zante	2 <sup>nd</sup> July	14	2 star	549	Half board
TE0056	Tenerife	Los Gigantes	2 <sup>nd</sup> July	7	2 star	349	Breakfast
TE0134	Tenerife	Los Gigantes	3 <sup>rd</sup> July	14	3 star	799	All inclusive
TU0398	Turkey	Kalkan	3 <sup>rd</sup> July	7	4 star	585	Half board
TU0022	Turkey	Kas	2 <sup>nd</sup> July	14	3 star	599	Breakfast
TU0267	Turkey	Marmaris	2 <sup>nd</sup> July	7	2 star	325	Room only

**12 (a) (i)** What is meant by the term field?

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 .....

(1 mark)

**12 (a) (ii)** How many fields are shown in each record in this database table?

(1 mark)

**12 (a) (iii)** Which is the key field in this database table? .....

(1 mark)

**12 (a) (iv)** State why a key field is needed in a database table.

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(1 mark)

**12 (b)** The result of the search shown in the database table above has been sorted into order. Describe the order into which the table has been sorted.

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(3 marks)

Turn over ▶



**12 (c)** Discuss, giving examples, the importance of checking sources when using the Internet to find and select information about holidays and holiday destinations.

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(5 marks)

<b>12</b>



13 An increasing number of supermarket customers are ordering their groceries online.

13 (a) Give **two** advantages to the customer of ordering their groceries online.

Advantage 1 .....

.....

Advantage 2 .....

.....

(2 marks)

13 (b) (i) A cookie will usually be created the first time a customer visits the supermarket's website. Tick **one** box to show which of the following best describes what a cookie is.

	Tick <b>one</b> box only
An image of the user	<input type="checkbox"/>
A bill, showing the amount spent	<input type="checkbox"/>
An icon that goes onto user's web browser	<input type="checkbox"/>
A small piece of text	<input type="checkbox"/>

(1 mark)

13 (b) (ii) Give **two** reasons why supermarkets use cookies.

Reason 1 .....

.....

Reason 2 .....

.....

(2 marks)

13 (b) (iii) Give **two** reasons why it might be sensible for the customer to delete the cookie from their computer.

Reason 1 .....

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Reason 2 .....

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(2 marks)

Turn over ▶



**13 (c)** Discuss, giving examples, the possible disadvantages and risks to customers of shopping online.

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(5 marks)

<b>12</b>





**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 possible effects on people who live in some developing countries of having no access or very limited access to ICT.

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

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**Turn over ▶**



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(12 marks)

<b>12</b>

**Turn over for the next question**

**Turn over ▶**



You should answer **either** Question 14 **or** Question 15, but **not** both.

**OR**

**15** Discuss the effects on companies of the increasing use of ICT and network technology.

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

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(12 marks)

<b>12</b>

**END OF QUESTIONS**



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ANSWER IN THE SPACES PROVIDED**

**Turn over ▶**



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