AQA

General Certificate of Secondary Education
January 2013

Information and Communication Technology (Full Course)

45201

Unit 1   Systems and Applications in ICT

Tuesday 15 January 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.
- 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.

M/Jan13/45201

45201

Section A

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

1   For parts **(a)** to **(h)**, write the letter for your answer in the box given.

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

         A   Bar-code reader
         B   Joystick
         C   Keyboard
         D   Speaker

Answer   *(1 mark)*

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

         A   Digital projector
         B   Monitor
         C   Plotter
         D   Web cam

Answer   *(1 mark)*

1 (c)   Which **one** of the following is **not** a storage medium?

         A   CD-ROM
         B   DVD-RAM
         C   Graphics tablet
         D   USB memory stick

Answer   *(1 mark)*

1 (d)   Which **one** of the following would **not** be a common use of microprocessor technology in a car?

         A   Booking the car in for a service
         B   CD player
         C   Radio
         D   Sat Nav

Answer   *(1 mark)*

1 (e)   What does the e-mail abbreviation 'cc' stand for?

    A   carbon copy
    B   checked copy
    C   complete copy
    D   customised copy

Answer ☐   *(1 mark)*

1 (f)   What does the abbreviation 'ISP' stand for when using the Internet?

    A   Internet Service Protocol
    B   Internet Service Provider
    C   Internet Standard Program
    D   Internet Standard Protocol

Answer ☐   *(1 mark)*

1 (g)   Which of the following is a typical feature of a *smart* phone, but **not** of a basic mobile phone? The ability to:

    A   play games
    B   make telephone calls
    C   use SMS (texting)
    D   access the Web

Answer ☐   *(1 mark)*

1 (h)   What are the programs called that are used to operate computers and related devices?

    A   Buffers
    B   Hardware
    C   Portable
    D   Software

Answer ☐   *(1 mark)*

8

Turn over ▶

2 Devas High School has end-of-year examinations for students. The headteacher wants all departments to use a similar cover on the front of the examination papers to avoid confusion for students. The front cover is shown below.

Devas High School — A

Subject — B

Year group

Date of examination

Start time

Time allowed

Instructions ← C

- Only use a black or blue ball-point pen.
- Do all rough work in this book. Cross out any work you do not want marked.
- Fill in your name and the name of your class teacher in the boxes below. — D

Student name

Class teacher

All students must enter the examination hall in silence and remain in silence during the whole of the examination. If you have any problems or questions please raise your hand and one of the invigilators will come around and help you. As a final reminder, students must **not** leave the examination hall until the examination has finished and they are dismissed by a member of staff. — E

2 (a) Tick **one** box to show which of the following **best** describes the feature applied to the school name labelled **A**.

	Tick **one** box only
Left justification	
Line spacing	
Font size 10 pt	
Wordart	

(1 mark)

2 (b) Tick **one** box to show which of the following **best** describes the feature labelled **B**.

	Tick **one** box only
Clip art	
Table	
Text box	
Underline	

(1 mark)

2 (c) Tick **one** box to show which of the following **best** describes the features applied to the text labelled **C**.

	Tick **one** box only
Bold and underline	
Bold and centre	
Bold and right justify	
Underline and double line space	

(1 mark)

2 (d) Tick **one** box to show which of the following **best** describes the feature labelled **D**.

	Tick **one** box only
Bullets	
Line spacing	
Numbering	
Shading	

(1 mark)

2 (e) Tick **one** box to show which of the following **best** describes the feature applied to the paragraph labelled **E**.

	Tick **one** box only
Centre	
Full justification	
Left justification	
Right justification	

(1 mark)

5

Turn over ▶

3   Below is a list of features found in a range of different software packages.

A   Curves, layering and rotating
B   Functions such as COUNT and ROUNDUP
C   Linking tables to reduce duplication of data
D   Mute, play and pause
E   Play list
F   Repeated patterns and morphing
G   RSS feed
H   Slide transition
J   Use of counters
K   Using a model to answer 'what if' questions

Choose your answers from the **list given above**.
Write the letters for your answers in the boxes given.

3 (a)   Which **one** of the above is an essential feature of presentation software?

Feature

(1 mark)

3 (b)   Which **two** of the above are essential features of web design software?

Feature 1

Feature 2   *(2 marks)*

3 (c)   Which **one** of the above is an essential feature of database software?

Feature   *(1 mark)*

3 (d)   Which **two** of the above are essential features of audio player software?

Feature 1

Feature 2   *(2 marks)*

3 (e)   Which **two** of the above are essential features of graphics software?

Feature 1

Feature 2   *(2 marks)*

8

4 (a) Many people now use VoIP/Internet telephone to make their telephone calls, rather than using traditional landlines.

4 (a) (i) Tick **one** box to show which of the following is a **disadvantage** of using VoIP/Internet telephone for making telephone calls, compared with using traditional landlines.

	Tick **one** box only
It relies on both people being available at the same time	
It relies on at least one person being available to make the call	
It relies on an Internet connection so it is less reliable	
It relies on a dial-up modem for connection to the Internet	

(1 mark)

4 (a) (ii) Give **two advantages** of using VoIP/Internet telephone for making telephone calls, compared with using traditional landlines.

Advantage 1...

....

Advantage 2...

....

(2 marks)

4 (a) (iii) Give **two advantages** of using VoIP/Internet telephone to communicate compared with using e-mail.

Advantage 1...

....

Advantage 2...

....

(2 marks)

4 (b) Give **one** reason why files attached to e-mails sometimes need to be compressed (zipped).

....

....

(1 mark)

Turn over ▶

6

5 A builder uses a spreadsheet to work out the cost of buying the materials to build a patio for a customer. Part of the spreadsheet is shown below.

	A	B	C	D	E	F	G
1	**Materials**	**Unit Price**	**VAT**	**Selling price**	**Number needed**	**Total price**	
2	Paving slabs - large	£3.75	£0.75	£4.50	50	£225.00	
3	Paving slabs - small	£2.25	£0.45	£2.70	20	£54.00	
4	Cement - bag	£9.95	£1.99	£11.94	2	£23.88	
5	Sand - bag	£5.25	£1.05	£6.30	3	£18.90	
6	Gravel - bag	£7.50	£1.50	£9.00	4	£36.00	
7	Stones - large bag	£11.25	£2.25	£13.50	2	£27.00	
8				Total materials cost		£384.78	
9							
10							
11	**VAT rate**	20%					

5 (a) Tick **one** box to show a cell that contains text.

	Tick **one** box only
A10	
A11	
B7	
B11	

(1 mark)

5 (b) Tick **one** box, that best describes the format of the cell E2.

	Tick **one** box only
Currency	
Date	
Number	
Text	

(1 mark)

5 (c) Give the cell reference for the cell that contains the formula   =SUM(F2:F7)

Cell reference ☐

(1 mark)

5 (d)   The cells C8, D8 and E8 have been combined into one cell.

What is this process called?

....

(1 mark)

5 (e)   The formula in cell C2 is   =B2*B11

5 (e) (i)   Tick **one** box that best describes the type of cell reference B2 in this formula.

	Tick **one** box only
Absolute	
Range	
Relative	
Static	

(1 mark)

5 (e) (ii)   Tick **one** box that best describes the type of cell reference B11 in this formula.

	Tick **one** box only
Absolute	
Range	
Relative	
Static	

(1 mark)

5 (f) (i)   The formula in cell C2 is replicated down column C.

State what is meant by the term *replicate*.

....

(1 mark)

5 (f) (ii)   Explain why the cell reference B11 is used in the cell C2, instead of using B11.

....

....

....

(2 marks)

Turn over ▶

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

A Encryption   **D** Spam filter
B Firewall   **E** Virus scan
C Pop-up blocker

	Description	Letter
(i)	A method that turns plain text or other data into a form that is unreadable by people	
(ii)	A program used to detect e-mail that is neither requested nor wanted and prevents the messages from getting to a user's inbox	
(iii)	A software barrier designed to prevent unauthorised or unwanted communications between computer networks	

(3 marks)

6 (b) (i) Describe what is meant by the term *password*.

....

....

....

(2 marks)

6 (b) (ii) Give **two** pieces of advice you would give to someone about choosing an effective password.

Advice 1 ....

....

Advice 2 ....

....

(2 marks)

6 (c)   Phishing e-mails are a common online hazard.

Tick **two** boxes that **best** show the reasons why these e-mails are usually sent.

	Tick **two** boxes only
To get sensitive information from you, such as usernames and passwords	
To get you to send money or credit card details	
To get you to send your e-mail address	
To send you details of special offers that are available	
To send you details of their website	

(2 marks)

```
___
 9
```

Turn over for the next question

7 The diagram below shows some of the features of a Graphical User Interface (GUI).
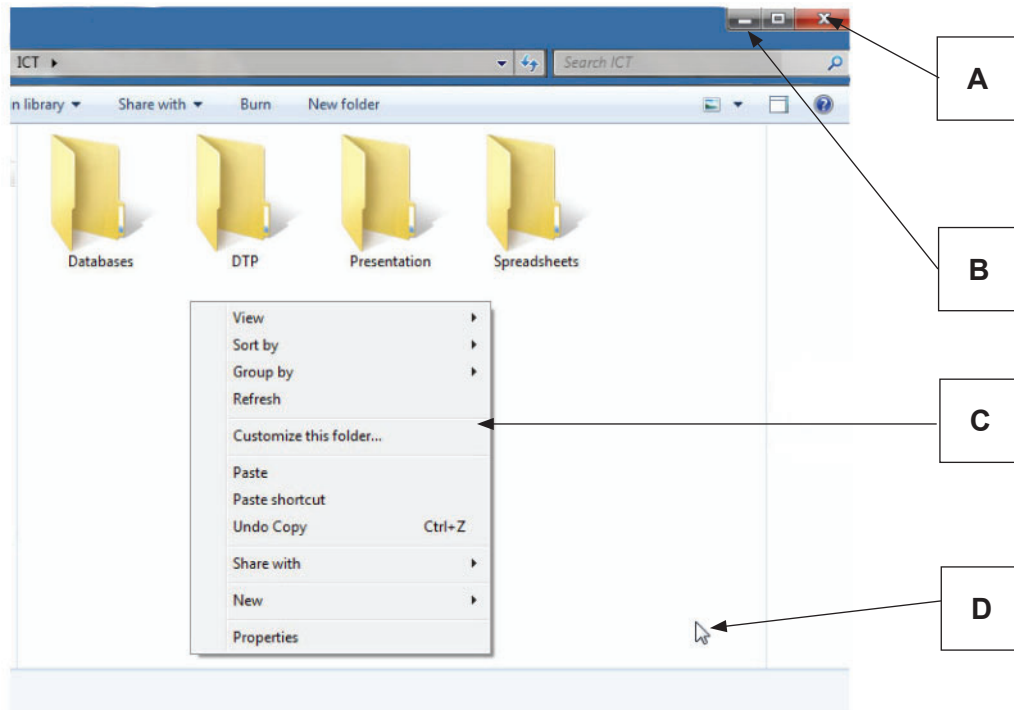
7 (a) (i) Tick **one** box to show the purpose of the GUI feature labelled **A**.

	Tick **one** box only
Close window	
Minimise window	
Open window	
Restore window	

(1 mark)

7 (a) (ii) Tick **one** box to show the purpose of the GUI feature labelled **B**.

	Tick **one** box only
Close window	
Minimise window	
Open window	
Restore window	

(1 mark)

7 (b) (i) Name the GUI feature labelled **C**.

Feature..

(1 mark)

7 (b) (ii) Name the GUI feature labelled **D**.

Feature..

(1 mark)

7 (c) Another feature of a GUI is a hyperlink.

Explain what is meant by a *hyperlink*.

....

....

....

(2 marks)

7 (d) Name **one** other type of user interface.

....

(1 mark)

7

Turn over for the next question

8 A computer shop uses a database to store information about the computers for sale. Part of the database file showing the laptops for sale is shown below.

Laptop ID	Processor	RAM	Hard disk	Screen size	Colour	Number in stock	Selling price (£)
LT0012	Devas D3300	2Gb	400Gb	15.6	Grey	12	299
LT0017	Premium P350	6Gb	320Gb	15.6	Grey	8	299
LT0023	Highspeedz H6200	3Gb	320Gb	15.6	Black	5	349
LT0034	Premium P350	3Gb	400Gb	11.6	Blue	7	329
LT0039	Highspeedz H6200	4Gb	500Gb	15.6	Red	3	359
LT0053	Premium P350	4Gb	320Gb	17.3	Black	5	399
LT0067	Devas D800	4Gb	640Gb	15.6	Silver	4	599
LT0084	Premium P450	6Gb	640Gb	15.6	Red	2	529
LT0093	Hightecz H8600	4Gb	400Gb	16.0	Black	5	599
LT0101	Hightecz H2620M	8Gb	1Tb	17.0	Silver	1	999
LT0112	Hightecz 2630QM	6Gb	1.5Tb	18.4	Black	3	1499

To search the database, commands from the following list are used.

And
Equals
For
Greater than
Less than
List
Or

The search:

List Laptop ID For RAM Equals 3Gb

would produce the result:

LT0023 LT0034

8 (a) What would be the result of the following searches?

8 (a) (i) List Laptop ID For Colour Equals Red

....
(1 mark)

8 (a) (ii) List Laptop ID For Screen size Equals 17.0 Or Screen size Equals 17.3

....
(1 mark)

8 (b) Using only commands from the list opposite, write down the searches needed to produce the following.

8 (b) (i) A list of the Laptop IDs, with more than 5 laptops in stock.

....

(2 marks)

8 (b) (ii) A list of the Laptop IDs, with a selling price equal to 400 or less.

....

(2 marks)

6

Turn over for the next question

Turn over ▶

9 Devaz Metalz is a small manufacturing company that uses a computer controlled cutting machine to cut a shape out of a sheet of metal.

Command	Action taken by the machine
Start	The cutting machine starts from the position shown by the arrow in the diagram. The cutting machine **starts in the Up position**
Down	Lowers the cutting machine so that it is in a position to start cutting
Up	Raises the cutting machine so that it is no longer in a position for cutting
Fdx	Moves the cutting machine forward x squares. For example Fd2 would move the cutting machine forward 2 squares
Rt90	Turns the cutting machine right 90 degrees
Lt90	Turns the cutting machine left 90 degrees
End	Ends the commands. This raises the cutting machine and moves it to the original starting position

9 (a) Complete the commands needed to cut out the shape below, and then return the cutting machine to the original starting position. The cutting machine can turn 90° without being raised and lowered.
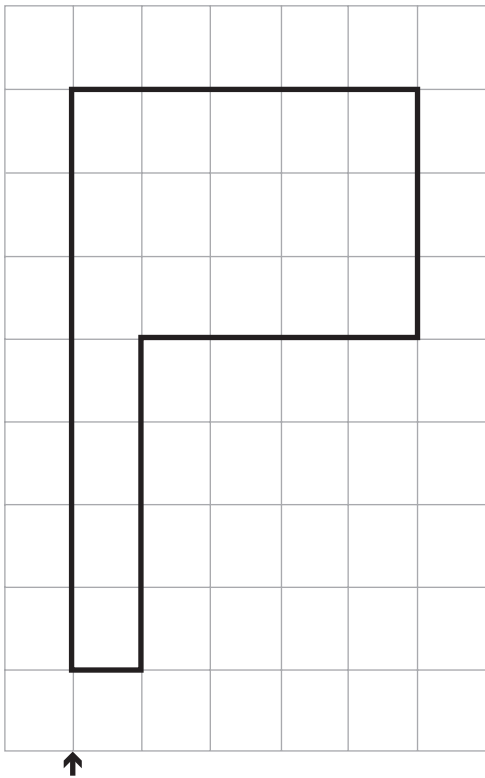
The starting position is at the tip of the arrow.

Complete the commands

1. Start

2. Fd1

3. ....

4. ....

5. ....

6. ....

7. ....

8. ....

9. ....

10. ....

11. ....

12. ....

13. ....

14. ....

15. ....

(4 marks)

9 (b) Give **two** reasons why it would be difficult to produce complex shapes using only the commands given opposite.

Reason 1 ....

....

Reason 2 ....

....

(2 marks)

6

Turn over for the next question

Turn over ▶

10 An estate agency wants to replace its ICT system. A feasibility study will be used to collect information about how the existing ICT system works.

10 (a) (i) Tick **one** box to show an **advantage** of collecting this information from employees at an interview, rather than by using a questionnaire that is handed out for them to fill in.

	Tick **one** box only
Answers can be displayed as graphs	
Follow on questions can be asked immediately	
Questions can be answered before or after work	
You can leave any questions you do not want to answer	

(1 mark)

10 (a) (ii) Give **one disadvantage** of collecting this information at an interview, rather than by using a questionnaire.

....

....

(1 mark)

10 (a) (iii) Give **one** other method used to collect information during a feasibility study.

....

(1 mark)

10 (b) Analysis, design, implementation, system testing, user training, evaluation and maintenance will all be stages in the production of the new ICT system. At which of these stages does each of the following happen?

10 (b) (i) Producing a plan for testing ....

(1 mark)

10 (b) (ii) Defining the desired outcomes and performance criteria ....

(1 mark)

10 (b) (iii) Planning the structure of a database..

(1 mark)

10 (b) (iv) Preparing the staff to use the new system...

(1 mark)

10 (b) (v) Reviewing the effectiveness of the new system..

(1 mark)

8

Turn over for the next question

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

Section B

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

11 BestBuyz is a company that sells second hand cars. A database is used to store details of the cars for sale. Part of the database is shown below.

Make	Year	Registration mark	Model	Engine size (cc)	Colour	Price (£)
Audi	2006	AI06 NMR	A3 TDi Sport	1600	Blue	5495
BMW	2004	FZ54 PTR	318SE	1895	White	1499
Fiat	2008	DQ08 KNH	Sport	1400	Red	3495
Ford	2007	IL57 ERT	Focus TDCi	1800	Yellow	3695
Ford	2005	JT05 ASD	Focus LX	1600	White	1975
Jaguar	2006	BZ06 CVB	S-Type	2700	Green	6250
Mercedes	2008	CI58 DFG	B150	1500	Silver	5775
Skoda	2005	EQ05 WER	Fabia	1200	Silver	1695
Vauxhall	2009	JR09 KLP	Insignia	2000	White	4250
Vauxhall	2006	AZ06 BNT	Astra Life	1600	Grey	1799
Volkswagen	2006	BI56 THN	Golf	1400	Blue	2250

11 (a) Which field has been used to sort the database?

....

(1 mark)

11 (b) (i) Which field would be the most suitable to use as the key field for this database?

....

(1 mark)

11 (b) (ii) State why the field you have chosen would make a suitable key field for this database.

....

(1 mark)

11 (c) Give **two advantages** to Bestbuyz of storing the car information on a database, rather than on paper in a filing cabinet.

Advantage 1..

....

Advantage 2..

....

(2 marks)

11 (d)   It is very important to Bestbuyz that the information it stores in the database is accurate.

11 (d) (i)   Tick **one** box to show which of the following is the **most** suitable method of data validation for the Price (£) field.

	Tick **one** box only
Drop down list	
Length check	
Range check	
Contains only letters and numbers	

(1 mark)

11 (d) (ii)   Tick **one** box to show which of the following is the **most** suitable method of data validation for the Make field.

	Tick **one** box only
Drop down list	
Length check	
Range check	
Contains only letters and numbers	

(1 mark)

11 (e)   Describe how the process of data verification could also be used to improve the accuracy of the Bestbuyz database of cars.

....

....

....

....

....

....

....

....

....

....

....

(5 marks)

Turn over ▶

12

12 The owners of a department store have recently transferred all their customer details onto a new computer system.

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

	Tick **two** boxes only
They must delete all the data every six months	
They must never delete any of the data	
They must never transfer the data to another country	
They must obtain the data for lawful and specified purposes	
They must process the data fairly and lawfully	

(2 marks)

12 (a) (ii) Tick **two** boxes to show which of the following are rights given to the customers as data subjects by the Data Protection Act.

	Tick **two** boxes only
They can delete any information they want to be removed	
They can pay to have any information they want to be removed	
They can prevent their data being used for advertising or marketing	
They can receive, on request, details of the stored data relating to them	
They can receive details, on request, about all other family members	

(2 marks)

12 (a) (iii) Give **one** example of an **exemption** in the Data Protection Act.

....

(1 mark)

12 (b) The Personal Data Guardianship Code is intended to help organisations understand their responsibilities.

Name **two** of the principles of good data governance explained in this code.

Principle 1 ....

Principle 2 ....

(2 marks)

12 (c) Describe the effectiveness of physical methods of preventing unauthorised access to computer systems.

....

....

....

....

....

....

....

....

....

....

....

(5 marks)

12

Turn over for the next question

13   The widespread use of ICT-based communication has highlighted a range of social, political and economic issues.

13 (a) (i)   Tick **two** of the following that would demonstrate responsible behaviour and help people stay safe online.

	Tick **two** boxes only
Delete e-mails that are more than two months old	
Do not physically meet a person they have only met online	
Never use the Internet after 11 pm	
Never visit any website more than once a day	
Never open e-mails from unknown sources	

(2 marks)

13 (a) (ii)   Give **two other** pieces of advice that you would give about responsible behaviour that would help people stay safe online.

Advice 1 ....

....

Advice 2 ....

....

(2 marks)

13 (b)   Increasingly, organisations such as the police force are setting up and using national databases.

Give **three** reasons why people are concerned about the setting up and use of national databases.

Reason 1 ....

....

Reason 2 ....

....

Reason 3 ....

....

(3 marks)

13 (c) What advice would you give to the owners of a company about backing up customer data they have stored on their ICT systems?

....

....

....

....

....

....

....

....

....

....

....

(5 marks)

12

Turn over for the next section

Turn over ▶

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 effects on society of social networking sites, web logs and websites produced by individuals.

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

....

....

....

....

....

....

....

....

Turn over ▶

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

(12 marks)

12

Or

15 Discuss the changing pattern of employment due to the introduction of computers and the increasing use of network technology.

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

....

....

....

....

....

....

....

....

....

....

....

....

Turn over ▶

(12 marks)

12

END OF QUESTIONS

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

NB: Some of the information in the data files in this question paper has been deliberately changed to suit the question.