

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										



General Certificate of Secondary Education
June 20XX

Information and Communication 45201 Technology

Unit 1 Specimen Systems and Applications in ICT

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. Use pencil only for drawing.
- Fill in the boxes at the top of this page.
- 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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12	
13	
14	
15	
TOTAL	



X X X X X X 4 5 2 0 1 0 1

Section A

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

- 1 (a) Which **one** of the following output devices gives hard copy output?

Write the letter corresponding to your answer in the box given.

- A** Digital projector
B Monitor
C Printer
D Speaker

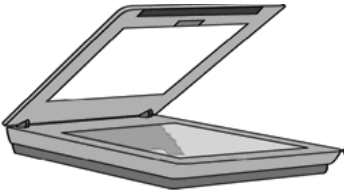

Answer

(1 mark)

- 1 (b) Five input devices have been labelled A to E in the table below.

Label	Name
A	Interactive whiteboard
B	Joystick
C	Keyboard
D	Microphone
E	Scanner

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

	Input device	Write one label in each box
(i)		
(ii)		

(2 marks)



1 (c) Name **one** other input device that is not given in part (b).

.....
(1 mark)

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

	Tick two boxes only
Colour laser printer	
Desktop computer	
Interactive whiteboard	
Notebook computer	
PDA	

(2 marks)

1 (e) Explain why all computers and other digital devices need software to operate.

.....
.....
(2 marks)

8

2 (a) People are increasingly using digital devices such as a Smartphone.

Give **three** features available on a Smartphone that are **not** usually available on standard phones.

Feature 1

Feature 2

Feature 3

(3 marks)

2 (b) **Without** just listing more additional features, explain what makes a Smartphone different from standard phones.

.....
.....
.....
(2 marks)

5

Turn over ▶



3 Some types of applications software are more suitable than others for carrying out a given task.

3 (a) Match the best type of applications software, **A, B, C, D** or **E**, to carry out the tasks (i) – (iii) in the table below.

- A Database
- B Desktop publishing
- C Graphics
- D Web design
- E Word processing

	Task to be carried out	Letter
(i)	Designing the cover for a music CD	
(ii)	Storing and processing the details of members of a gym	
(iii)	Creating a printed school magazine that includes images of the various school activities over the year	

(3 marks)

3 (b) A university student uses a PC to help plan her budget for the first term. A screenshot of this plan is shown below

	A	B	C	D
1	Weekly Budget			
2				
3	Income	Amount	Weeks	Income per week
4	Government grant	£1,020.00	12	£85.00
5	Student Loan (per term)	£1,380.00	12	£115.00
6	Weekly wage form part-time job	£25.00	1	£25.00
7				
8	Total weekly Income			£225.00
9				
10				
11	Spending	Amount	Weeks	Spending per week
12	Rent (paid monthly)	£210.00	4	£52.50
13	Fuel bills (paid monthly)	£45.00	4	£11.25
14	Other bills - food etc.	£250.00	4	£62.50
15	College expenses - books etc. (per term)	£190.00	12	£15.83
16	Clothes (per term)	£160.00	12	£13.33
17	Travel (per term)	£130.00	12	£10.83
18	Leisure activities per week	£40.00	1	£40.00
19	Emergency money - left in bank (per term)	£100.00	12	£8.33
20				
21	Total spending			£214.58
22				
23	Money left per week			£10.42
24				

Which type of application software has been used to create this budget?

Software used

(1 mark)



3 (c) The cell A4 has been formatted to text.

Tick **one** box to show how the cell C5 has been formatted.

	Tick one box only
Currency	
Date	
Number	
Percentage	

(1 mark)

3 (d) What formula has been used in cell D4?

.....

(1 mark)

3 (e) Explain how the student could use this software as a model to explore ways of spending the money but still stay within budget.

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(2 marks)

8

Turn over for the next question

Turn over ▶



- 4 (a) Companies use a variety of communications media to keep in touch with their offices, both in this country and around the world.

Match the letters **A, B, C, D** and **E** with the **best** descriptions **(i) – (iii)** in the table given below.

- A** Bulletin board
B Chat room
C Fax
D Sat Nav
E Video conferencing

	Description	Letter
(i)	A site on the Internet, often dedicated to a particular topic, where a number of users can communicate in real time	
(ii)	Provides real-time video and voice communication between terminals, usually employing a dedicated system	
(iii)	A place where people can leave public messages, for example, to advertise things to buy or sell, announce events, or provide information	

(3 marks)

- 4 (b) One other method often used to communicate is e-mail.

Explain what is meant by the term *e-mail*.

.....

(2 marks)

- 4 (c) (i) Tick **one** box that best explains what the cc feature does, when using e-mail.

	Tick one box only
Sends a copy of the e-mail to another named e-mail address	
Cancels the last e-mail sent from the user's computer	
Puts a copy of the e-mail into the user's address book	
Sends a copy of the e-mail back to the sender	

(1 mark)

- 4 (c) (ii) One of the problems with e-mail is that people may receive spam.

Describe what is meant by the term *spam*.

.....

(2 marks)



5 (a) People use a wide range of sources to access information.

From the list given below, choose which source of information best matches the description in the middle column of the table below. Write your answer in the space provided.

Blog	Newspaper	Wiki
Book	Podcast	Map
Text message		

	Description	Source of information which best matches the description
(i)	A short note sent from one mobile phone to another	
(ii)	An online diary of events on a website	
(iii)	A collection of web pages designed to enable anyone who accesses it to contribute to or modify the content	
(iv)	A series of digital media files that is made available for download via Web syndication	

(4 marks)

5 (b) When using computers, ICT problems such as a software freeze sometimes happen.

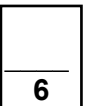
Describe what is meant by *a software freeze* and how to recover from it.

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.....

(2 marks)



Turn over for the next question

Turn over ▶



- 6 Speedy Logos is a graphic design company that manufactures logos for other people. The company has recently started to automate the process of producing these logos. The first trials of the machine they have developed involve the creation of simple logos.

Examples of the commands the machine is programmed to follow are given below.

Command	Action taken by machine
START	Start program
PU	Pen Up – raises the drawing pen so that it stops drawing
PD	Pen Down – lowers the drawing pen so that it starts drawing
FD 1	Move forward 1 square
BK 2	Move backwards 2 squares
RT 90	Turn right through 90 degrees
LT 90	Turn left through 90 degrees
END	End program

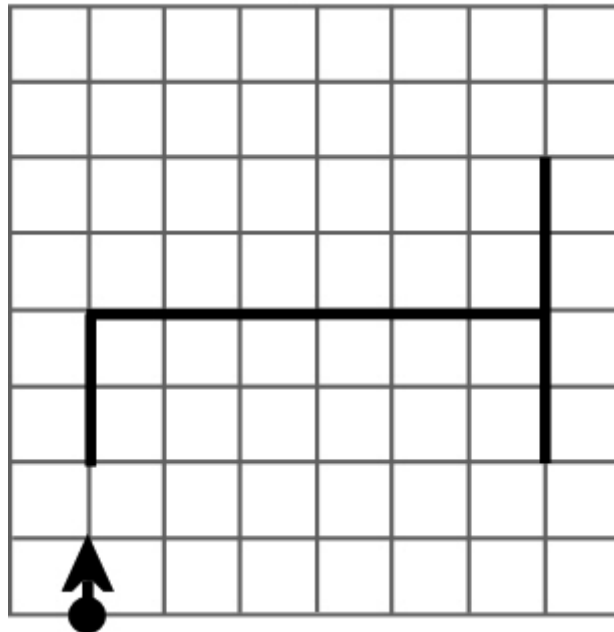
The machine always starts with the **pen up** so that it does not draw. When the **END** command is used the pen is automatically returned to its starting position.

- 6 (a) Write a program that will draw **Logo A** as shown below.

START

Logo A

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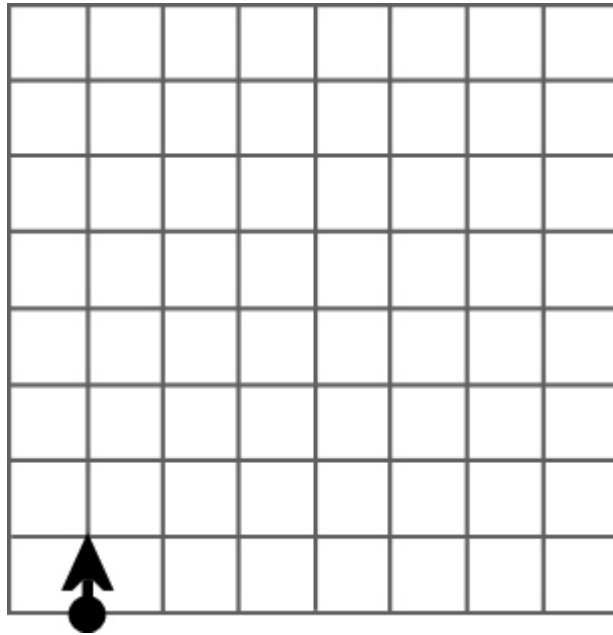
Starting position is at
the tip of the arrow

(3 marks)



- 6 (b) On the grid below, draw the shape that the machine will produce when carrying out the following program.

```
START
FD 1
RT 90
FD 4
PD
FD 2
LT 90
FD 4
BK 2
LT 90
FD 6
END
```



(3 marks)

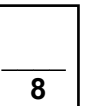
- 6 (c) Explain why it would be difficult to design an attractive or complex logo using only the commands given above.

.....

.....

.....

(2 marks)



Turn over for the next question

Turn over ▶



7 Integrated home entertainment systems are also becoming increasingly popular.

7 (a) Give **three** devices you would expect to find in such systems.

Device 1

Device 2

Device 3

(3 marks)

7 (b) For many years terrestrial TV offered a very limited number of channels and services. Today with the introduction of digital, cable and satellite TV many more channels, facilities and services are available.

Other than providing extra channels, describe **two** facilities or services you would expect to be available on cable or satellite TV.

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(4 marks)

7



8 (a) Five stages of the system life cycle have been labelled A to E in the table below.

Write down the labels to show the order in which these stages occur. The first one, E, has been filled in for you.

Label	Stage
A	Testing
B	Implementation
C	User Guide
D	Design
E	Analysis

Label
E

(2 marks)

8 (b) Name **two** other stages in the system life cycle that are **not** given above.

1

2

(2 marks)

8 (c) Match the letters **A, B, C, D** and **E** with the **best** descriptions **(i)-(iv)** in the table given below.

- A Erroneous data
- B Performance criteria
- C Questionnaires
- D Test Plan
- E Verification

	Description	Letter
(i)	Set up in the analysis stage and used to judge the success of the system	
(ii)	Used in the testing stage, to check that any values outside of an acceptable range are not accepted	
(iii)	Used in the feasibility study to collect information about the existing system	
(iv)	Created in the design stage, it is used to check that all parts of the system work	

(4 marks)

8

Turn over ▶



9 (a) From the list given below, choose the term which best matches each of the definitions in the left-hand column of the table. Write each answer in the space provided.

- | | | | |
|-------------------|--------------|------------------|-------------|
| bar codes | data logging | hot spot | virus |
| calibrate | encrypted | logging interval | web browser |
| chip and PIN | feedback | modem | |
| data capture form | hardware | OMR | |

	Definition	Term which best matches the definition
(i)	A method of data capture used by students when answering multiple-choice examination questions	
(ii)	A method of data capture used to store data on bank or credit cards	
(iii)	The collecting and storage of data at regular, fixed intervals over a period of time	
(iv)	An area or image which provides links to other pages on a website	
(v)	A program which copies itself and is usually designed to damage data or affect the running of the system	

(5 marks)

9 (b) State what is meant by the term *data encryption* and explain why it is used.

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(2 marks)

7



10 When setting up any new ICT system, the choice of which type of operating system to use and the design of the user interface are important decisions.

10 (a) Tick **two** boxes to show which of the following tasks would be carried out by an operating system.

	Tick two boxes only
Accepting keyboard input	
Managing the spell checker in a word processor	
Producing graphs from a table of data	
Repairing a damaged DVD	
Transferring data to a printer	

(2 marks)

10 (b) Which **one** of the following is a type of operating system?

	Tick one box only
random time	
real time	
reduced time	
repeated time	

(1 mark)

10 (c) Name **one** other type of operating system.

.....
(1 mark)

10 (d) A Menu User Interface is one type of user interface that could be used in an ICT system.

Name **one** other user interface that could be used.

.....
(1 mark)

10 (e) Which **one** of the following is the most important feature to be considered when designing a new user interface?

	Tick one box only
Availability of a help facility	
The yearly pay of the people who will be using the system	
The age of the people who will be using the system	
The age of the people designing the system	

(1 mark)

Turn over ▶



10 (f) Give **one** other important feature to be considered when designing a new user interface.

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(1 mark)

7



Section B

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

- 11** The rock band Purple Spiders has a large fan club run by the band's manager. A database is used to store details of the members of the fan club. Part of the database file is shown below.

Member ID	Last name	First name	House number	Postcode	Fees paid	Date joined
PS0025	Afzal	Aman	56	NT7 9SS	Y	26/01/2009
PS0030	Ahmed	Parvaiz	11	SH10 1UU	Y	7/02/2009
PS0003	Amos	Linda	3	LC4 2ER	Y	3/11/2008
PS0017	Brown	Lewis	56	BR12 7HH	Y	5/01/2009
PS0018	Currie	Jon	17	ED6 1PU	Y	4/01/2009
PS0012	Durham	Sarah	123	LV18 1SD	Y	29/12/2008
PS0009	Ho	Chin	56	PR5 6TY	Y	18/12/2018
PS0032	Jones	Alan	19	DN3 6XD	N	11/02/2009
PS0020	Khan	Farhana	5	GL11 8NB	N	14/01/2009
PS0024	Roberts	Katie	33	NW2 4XX	Y	26/01/2009

- 11 (a)** Give a reason why:

- 11 (a) (i)** the **Member ID** field is needed.

.....

 (1 mark)

- 11 (a) (ii)** the **Fees paid** field has been coded.

.....

 (1 mark)

- 11 (b)** there is a mistake in the **Date joined** column.

State how you know this must be a mistake.

.....

 (1 mark)

Turn over ►



11 (c) Data validation could have been used to prevent this mistake.

11 (c) (i) Describe what is meant by the term *data validation*.

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(2 marks)

11 (c) (ii) Explain how data validation could have been used to prevent this mistake.

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(2 marks)

11 (d) As a data user, the band’s manager would have to register the fan club under the terms of the Data Protection Act.

Discuss the implications of the responsibilities placed on the manager by the Data Protection Act.

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(5 marks)



12 An increasing number of people are joining social networking websites.

12 (a) Which **one** of the following is a well known social networking website?

	Tick one box only
E-book	
Face-to-face	
Facebook	
Netbook	

(1 mark)

12 (b) Describe what is meant by the term *social networking*.

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(2 marks)

12 (c) Give **two** reasons why social networking websites are becoming increasingly popular.

Reason 1

Reason 2

(2 marks)

12 (d) Give **two** possible disadvantages to the visitor of using social networking sites.

Disadvantage 1

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Disadvantage 2

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(2 marks)

Turn over ▶



12 (e) Discuss the advantages of using a social networking website compared to using a web log (blog).

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(5 marks)

12



13 A travel agency uses networked computers to book holidays for its customers. The computers are connected to the Internet.

13 (a) Security is very important and each travel agent in the shop has their own password.

13 (a) (i) What is meant by a *password*?

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.....
(1 mark)

13 (a) (ii) The choice of a suitable password is very important.

Give **three** pieces of advice that you would give to the travel agent about choosing a suitable password.

Advice 1
.....

Advice 2
.....

Advice 3
.....
(3 marks)

13 (b) One of the biggest security problems for the travel agency comes from hackers.

13 (b) (i) State what is meant by a *hacker*.

.....
.....
(1 mark)

13 (b) (ii) Other than the use of passwords, give **one** other software method of preventing hackers.

.....
.....
(1 mark)

Turn over ▶



13 (c) Give **one** method of physical security that could be used to keep the travel agency's computer systems safe.

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(1 mark)

13 (d) Discuss the possible health issues of the use of computers by the travel agency staff. Suggest how some of these issues might be overcome.

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(5 marks)

12

Section C

Answer **either** Question 14 **or** Question 15.

You will be marked on your ability to use good English, to organise information clearly and to use specialist vocabulary, where appropriate.

EITHER

14 A high street bookshop has recently installed a new computer system that has Internet access.

What are the possible advantages **and** disadvantages of this new Internet access to the owner of the bookshop? Your answer should give clear examples.

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Turn over ▶



A large rectangular box containing 20 horizontal dotted lines for writing.

(12 marks)

12



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(12 marks)

END OF QUESTIONS

