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Centre Number		Candidate Number	
Candidate Signature			

For Examiner's Use

General Certificate of Secondary Education
June 2008

INFORMATION AND COMMUNICATION TECHNOLOGY 3521/H
(SPECIFICATION A) (FULL COURSE)
Higher Tier

H



Tuesday 20 May 2008 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 **all** questions.
- You must answer the questions in the spaces provided. **Answers written in margins or on blank pages will not be marked.**
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The maximum mark for this paper is 80.
- The marks for questions are shown in brackets.
- You are reminded of the need for good English and clear presentation in your answers.

For Examiner's Use			
Question	Mark	Question	Mark
1-4		11	
5		12	
6		13	
7		14	
8		15	
9			
10			
Total (Column 1) →			
Total (Column 2) →			
TOTAL			
Examiner's Initials			



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

For Questions 1 to 4, write the letter for each answer in the box given.

1 What is meant by the term hard copy?

- A Information that is never output
- B Output saved on to ROM
- C Output on to a screen
- D Printed output

Answer

(1 mark)

2 Which **one** of the following is a right the Data Protection Act gives to data **subjects**?

- A Any data individuals want removed, must be removed
- B An individual's own data must be sent to them on request
- C Data is always correct
- D Data must never be passed onto others

Answer

(1 mark)

3 Large computer files can be **compressed** before storing them. Which **one** of the following is the usual reason for doing this?

- A Make it more difficult for hackers to read
- B So they can be expanded before they are used
- C To reduce the storage space needed
- D To get people to write shorter letters

Answer

(1 mark)

4 Which **one** of the following is **not** a logical operator used in the construction of database queries?

- A AND
- B BUT
- C NOT
- D OR

Answer

(1 mark)

4



5 Quickcallz is a High Street company that sells a range of mobile phones. They are going to produce a leaflet that will contain text and clip-art, to advertise their ‘Summer Sale’. The owners of the shop are worried about the copyright on the clip-art they are planning to use.

5 (a) What is meant by the term copyright?
.....
(1 mark)

5 (b) Which **one** of the following applies to the copyright on clip-art?

	Tick one box only
Clip-art is always free of copyright	
Clip-art is never free of copyright	
Clip-art is sometimes free of copyright	

(1 mark)

5 (c) Give **one** penalty the owners could face if they broke the copyright law.

.....
(1 mark)

5 (d) The ability to use clip-art is one feature that would make a DTP (Desk Top Publishing) package suitable for Quickcallz to produce their advertising leaflet. Give **three** other features of the software that make it suitable for producing the leaflet.

Feature 1
.....
Feature 2
.....
Feature 3
.....

(3 marks)

6

Turn over ▶



6 A fast food restaurant has decided to store details of its staff on a database. Below is the start of a design for this database.

6 (a) Finish the design below by completing the **four** blank boxes. The first two have been completed for you.

Field name	Example of field	Most suitable field type
Employee code	FFD000231	Text
Surname	Abbott	Text
First name	Jane	
Date of Birth	20 th January 1980	
Telephone number	(01122) 787878	
Annual salary	£11500	

(4 marks)

6 (b) Give **two** more fields, other than address, which could be included in the staff database.

Field 1

Field 2

(2 marks)

6 (c) Give **one** type of data validation that could be used on each of the following fields.

Employee code

Annual salary

(2 marks)

8



7 Modern computer systems make use of a variety of methods of data capture, some of which are shown below.

- | | | |
|----------------|-------------------|------------------|
| A bar codes | D magnetic strips | G OMR |
| B data logging | E MICR | H questionnaires |
| C feedback | F OCR | I sensor |

From the list given above, choose the **most suitable** method of data capture for each of the applications given below. Write the letter for each answer in the box given.

7 (a) Used to input students' answers to multiple-choice examination questions. Students put a mark in the box next to their chosen answer.

Answer (1 mark)

7 (b) Used to collect information from parents about planned changes to the length of the school day.

Answer (1 mark)

7 (c) Used to input information from groceries at the supermarket checkout.

Answer (1 mark)

7 (d) Used to input information from a credit card when paying for petrol at a garage.

Answer (1 mark)

7 (e) Used by banks to input cheque details including the value of the cheque.

Answer (1 mark)

5

Turn over ►



8 Some students are planning a School Prom for Year 11. Their first attempt is shown below.

	A	B	C	D	E
1	Year 11 Prom Planner				
2					
3	29 June 2008				
4					
5	Number of students paying	150			
6					
7	Expenditure	Cost of each	Number needed	Total Cost	
8	Coach Hire	£75.00	4	£300.00	
9	Function rooms	£100.00	3	£300.00	
10	Decorations (per room)	£22.50	3	£67.50	
11	Three course meal	£14.00	150	£2,100.00	
12	Soft drinks	£3.50	150	£525.00	
13					
14					
15					
16					
17	Total cost of the Prom			£3,292.50	
18					
19	Cost per student			£21.95	

8 (a) What is the cell reference of the shaded cell?

Answer

(1 mark)

8 (b) Name **three** cell formats that have been used in this spreadsheet.

Cell format 1

Cell format 2

Cell format 3

(3 marks)

8 (c) A spreadsheet can generate different types of graph. Give **one** suitable type of graph that could be used to display the various kinds of expenditure.

.....

(1 mark)



8 (d) What formula has been used to calculate the cost per student in D19?

.....
(1 mark)

8 (e) Many Year 11 students said that the maximum they would pay to go to the Prom would be £20. Explain how the software could be used for 'what if' situations, to try to keep the cost under £20.

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

9 Give **four** responsibilities placed on **data users** by the 1998 Data Protection Act.

Responsibility 1
.....
.....

Responsibility 2
.....
.....

Responsibility 3
.....
.....

Responsibility 4
.....
.....
(4 marks)

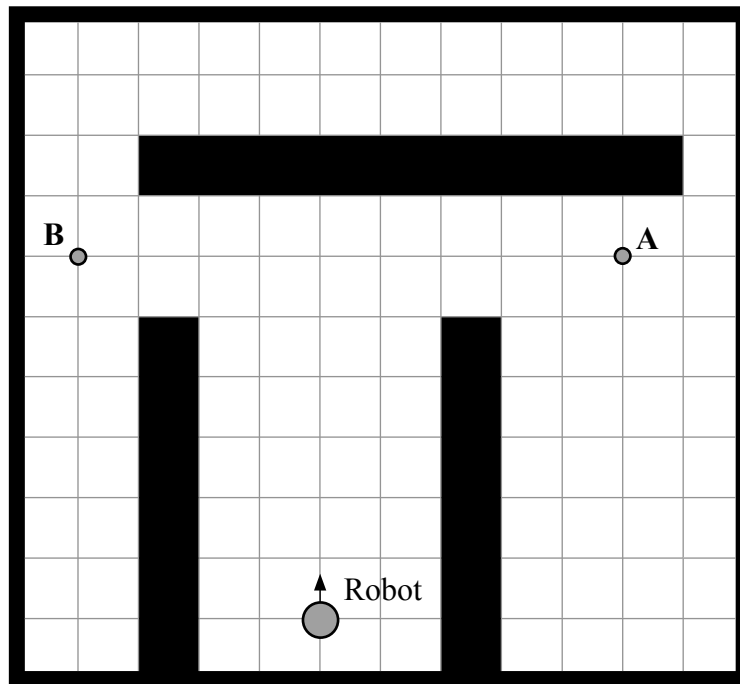
8

4

Turn over ▶



- 10 A group of pupils from a school enter a competition to build a programmable robot. The robot must move around an obstacle course without bumping into the walls. The walls are shown in black in the diagram below.



Examples of the instructions needed to program the robot are given below.

Instruction List	Movement by the robot
Fd2	Moves the robot forward 2 squares
Bk2	Moves the robot backward 2 squares
Rt90	Turns the robot right through 90 degrees

Command List

Fd4
Fd5
Fd6
Rt90
Bk4
Bk5



10 (a) Using **only** the commands from the Command List opposite, write down instructions to move the robot from the starting position shown to point A.

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

(2 marks)

10 (b) Again using **only** the commands from the Command List, write down instructions to move the robot from the original starting position shown to point A, then to point B and finally back to the original starting position.

.....
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(3 marks)

5

Turn over for the next question

Turn over ▶



11 CottagesRUS is a company that rents out holiday homes. They use a database to store information on their properties to rent. Part of the Database file is shown below.

Property ID	Type of Property	Property location	Max people	Heating	Weekly rent (min – max)	Pets allowed	Deposit needed
C4UC01	C	Lancre	4	CH	£200 - £300	Y	£50
C4UC02	C	Lancre	4	CF	£200 - £300	N	£50
C4UH02	H	Hickley	12	CH	£300 - £500	N	£100
C4UC04	C	Hickley	6	EF	£250 - £375	N	£75
C4UB02	B	Lancre	6	CH	£275 - £375	N	£75
C4UB03	B	Hickley	4	CH	£175 - £275	Y	£50
C4UH03	H	Lancre	8	CH	£300 - £400	Y	£100
C4UC06	C	Lancre	6	CF	£200 - £300	N	£50
C4UC07	C	Lancre	2	CH	£150 - £225	N	£40
C4UH05	H	Hickley	8	CH	£250 - £375	N	£75
C4UB05	B	Hickley	4	CH	£175 - £250	Y	£50
C4UC09	C	Lancre	2	CH	£150 - £225		£50

The following codes have been used for the **Type of Property** field.

C - Cottage H - House B – Bungalow

11 (a) Name **one** other field that has been coded. (1 mark)

11 (b) How many records are shown in this database file?

Answer (1 mark)

11 (c) Why is the **Property ID** field needed?..... (1 mark)

11 (d) Give **two** advantages to CottagesRUS of using a database rather than a manual method for storing this information.

Advantage 1 (2 marks)

Advantage 2



11 (e) Write down the **Property ID(s)** found as a result of the following searches.

11 (e) (i) Search 1: **Max people** equal to 12

Property ID(s)
(1 mark)

11 (e) (ii) Search 2: **Property location** equal to Lancre AND **Pets allowed** equal to Y

Property ID(s)
(1 mark)

11 (e) (iii) Search 3: **Heating** NOT equal to CH

Property ID(s)
(1 mark)

11 (f) (i) The final entry in the **Pets allowed** field has been left blank. Give **one** reason why this might have been left blank.

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

11 (f) (ii) Explain how CottagesRUS could reduce the chance of this happening.

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

11

Turn over for the next question

Turn over ▶



12 A college has just developed a new computer program for processing examination results. The system needs to be tested using a test plan.

12 (a) At which stage of the system life cycle would the test plan be produced?

..... (1 mark)

12 (b) Which **two** of the following would you expect to find in the test plans?

	Tick two boxes only
A printout of the computer program	
A list of all tests to be carried out	
An annotated design of the program	
Changes to be made as a result of testing	
Expected results	

(2 marks)

12 (c) Give **two** reasons why a test plan is needed.

Reason 1

.....

Reason 2

.....

(2 marks)

12 (d) In the new system, all exam marks must be greater than or equal to 0 and less than or equal to 100. The system must be tested with typical, extreme and erroneous data. Give **one** suitable piece of test data that could be used to test **each** of the following.

12 (d) (i) Typical data (1 mark)

12 (d) (ii) Extreme data (1 mark)

12 (d) (iii) Erroneous data (1 mark)



13 Increasingly, companies are using e-mails to communicate between their offices around the world.

13 (a) Describe what is meant by the term e-mail.
.....
.....
(2 marks)

13 (b) Which **two** of the following are advantages of using e-mail as a means of communication compared to using **post**?

	Tick two boxes only
E-mails will arrive faster	
E-mails can contain pictures	
E-mails are cheaper to send	
E-mails can be sent in any weather	
E-mails can be sent to more places than post	

(2 marks)

13 (c) Give **one** disadvantage of using e-mail as a means of communication compared to using **post**.

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

13 (d) Give **one** reason why some people may still use the telephone to communicate with people in other offices.

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

6

Turn over ▶



14 An operating system is an essential part of any ICT system.

14 (a) Is an operating system hardware or software?

	Tick one box only
hardware	
software	

(1 mark)

14 (b) Which **two** of the following are tasks carried out by all operating systems?

	Tick two boxes only
data logging	
managing system resources including memory	
producing graphs in a database	
repairing a damaged DVD	
transferring data to a printer	

(2 marks)

14 (c) Which **one** of the following is a type of operating system?

	Tick one box only
multi-user	
multiplex	
multi-time	

(1 mark)

14 (d) Name **one** other type of operating system.

.....

(1 mark)

5



15 An increasing number of companies store vast amounts of information on their computer systems. Information is stored on a wide range of items such as details of their employees, customers and suppliers. It is vital that the information stored is accurate.

15 (a) Describe possible consequences to a company if some of this information is inaccurate.

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(3 marks)

Turn over ▶



15 (b) Describe ways in which the information stored by the company on the computer system may have become inaccurate.

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(3 marks)



15 (c) Describe ways in which a company could reduce the risks of inaccurate data being stored on their computer system.

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(4 marks)

END OF QUESTIONS

10



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