

Surname		Other Names	
Centre Number		Candidate Number	
Candidate Signature			

For Examiner's Use
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General Certificate of Secondary Education  
June 2007

**INFORMATION AND COMMUNICATION TECHNOLOGY 3521/F  
(SPECIFICATION A) (FULL COURSE)  
Foundation Tier**

**F**



Tuesday 22 May 2007 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 blue or black ink or ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- Answer the questions in the spaces provided.
- 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
1-5		13	
6		14	
7		15	
8		16	
9		17	
10		18	
11		19	
12			
Total (Column 1) →			
Total (Column 2) →			
TOTAL			
Examiner's Initials			



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

For Questions 1 to 5, write the letter for each answer in the space given.

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

- A Keyboard
- B Scanner
- C Hard disk drive
- D Joystick

Answer

(1 mark)

2 Which **one** of the following is **not** an output device?

- A Screen (VDU)
- B Plotter
- C Laser printer
- D Microphone

Answer

(1 mark)

3 Which **one** of the following is **not** a storage device?

- A Touch sensitive screen
- B Floppy disk drive
- C CD-ROM drive
- D Magnetic tape unit

Answer

(1 mark)

4 Which **one** of the following loses its contents when the computer is switched off?

- A ROM
- B RAM
- C Hard disk
- D Floppy disk

Answer

(1 mark)

5 A search engine is

- A hardware used to help find information on the Internet.
- B software used to help find information on the Internet.
- C hardware used to send e-mails.
- D software used to send e-mails.

Answer

(1 mark)





7 Phantastic Phones sell mobile phones and accessories.

The manager has produced the leaflet below using word processing software. The leaflet will be given out to people shopping in the High Street.

Phantastic Phones Special Offers

To celebrate the end of our first year in business, we are offering these special deals.

1. Buy any new phone in May and get 25% off the marked price.
2. Take out a new monthly contract with us and get the first three months free.

To reserve your phone or to get more details, phone Steve on 057 117 11700

- (a) Tick **two** boxes to show which of the following features of a word processing package could be used to improve the **layout** of the leaflet.

	Tick <b>two</b> boxes only
Line spacing	
Search facility	
Mail-merging	
Centre	
Hyperlink	

(2 marks)

- (b) Give **two** additional features of a word processing package that could be used to improve the **presentation** of the leaflet.

Feature 1 .....

Feature 2 .....

(2 marks)

- (c) Give **one** feature of the software that could be used to check the accuracy of the text used in the leaflet.

Feature .....

(1 mark)



- (d) The manager wants to use the word processing package to rearrange the leaflet so that the second special deal comes before the first.  
Using the list given below, write down the steps needed to do this.

Paste

Cut

Highlight the second special deal

Position the cursor just above the first special deal

Step 1	
Step 2	
Step 3	
Step 4	

(2 marks)

7
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**Turn over for the next question**



- 8 A computer system controls a robot turtle. At the front, the turtle holds a pen. When the turtle moves, the pen leaves a line on the paper beneath it.

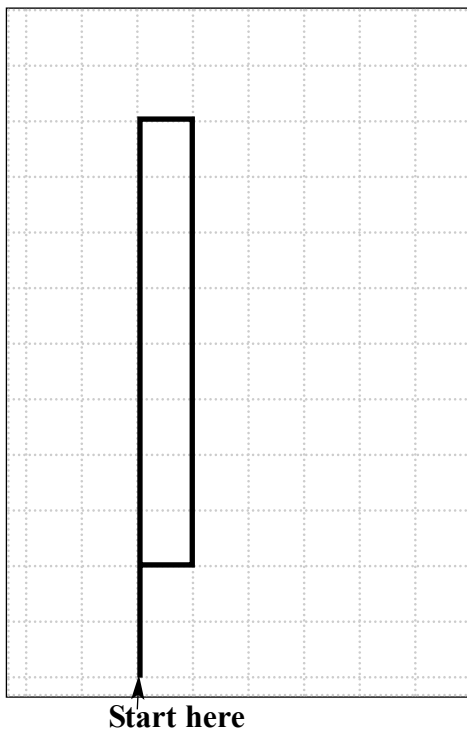
Examples of the commands which are used to move the turtle are as follows:

**FORWARD 5** would move the turtle forward 5 complete squares.

**BACKWARD 5** would move the turtle backward 5 complete squares.

**RIGHT 90** would turn the turtle right through an angle of 90 degrees.

- (a) Write down the commands needed to draw this shape.



**Commands**

.....

.....

.....

.....

.....

.....

.....

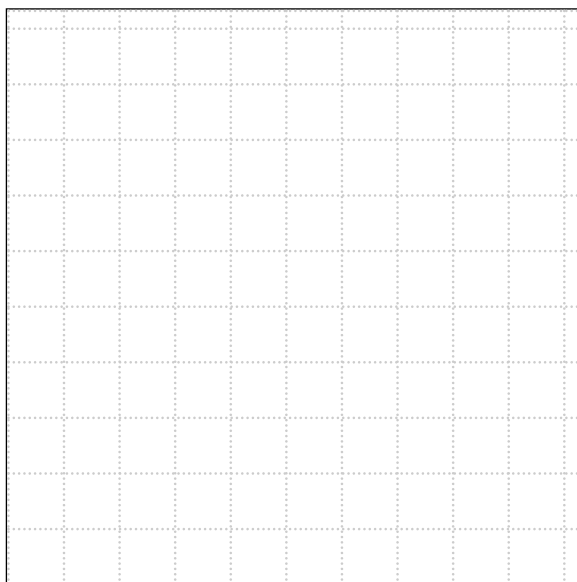
.....

.....

.....

(3 marks)

- (b) On the grid, draw the shape produced by the commands given below.



**Commands**

**FORWARD 8**  
**BACKWARD 4**  
**RIGHT 90**  
**FORWARD 5**  
**RIGHT 90**  
**FORWARD 4**  
**BACKWARD 8**

(3 marks)



- 9 (a) In the table below, tick **three** boxes to show tasks that are carried out by operating systems.

	Tick <b>three</b> boxes only
Manages data transfers to and from peripherals	
Provides a means of communication between applications software and the hardware	
Allows pupils to access the Internet on a school network	
Helps to prevent theft of hardware such as mice	
Allocates memory for storing programs	
Detects viruses	

(3 marks)

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

	Tick <b>one</b> box only
Multi-user	
Multi-active	
Multi-timing	

(1 mark)

4
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**Turn over for the next question**



- 10 A university student uses a PC to help plan a budget for the first term. Their first attempt is shown below.

	A	B	C	D	E
1	<b>Weekly Budget</b>				
2					
3	<b>Income</b>	<b>Amount</b>	<b>Weeks</b>	<b>Income per week</b>	
4	Student Loan (per term)	£2100.00	12	£175.00	
5	Monthly allowance from parents	£150.00	4	£37.50	
6	Weekly wage from part-time job	£32.00	1	£32.00	
7					
8	<b>Total Income per week</b>			£244.50	
9					
10					
11	<b>Spending</b>	<b>Amount</b>	<b>Weeks</b>	<b>Spending per week</b>	
12	Rent (paid monthly)	£270.00	4	£67.50	
13	Gas/electric bills (paid monthly)	£50.00	4	£12.50	
14	House bills - food etc (per month)	£250.00	4	£62.50	
15	Books etc for university (per term)	£150.00	12	£12.50	
16	Clothes (per term)	£210.00	12	£17.50	
17	Travel (per term)	£120.00	12	£10.00	
18	Leisure, nights out etc.	£50.00	1	£50.00	
19	Leave in bank for unexpected spending	£100.00	12	£8.33	
20					
21	<b>Total spending per week</b>			£240.83	
22					
23	<b>Money left per week</b>			£3.67	
24					

- (a) Tick **one** box to show which type of software package has been used.

	Tick <b>one</b> box only
Graphics	
Database	
Spreadsheet	
Multimedia	

(1 mark)

- (b) Which cell contains the spending on rent per week?

.....

(1 mark)





- (c) Which **one** of the following is the formula used in cell D23?

	Tick <b>one</b> box only
=D21-D8	
=D8-D21	
=sum(D2:D12)	

(1 mark)

- (d) The cell format in cell A1 is text. What cell format is used in cell C12?

.....  
(1 mark)

- (e) Tick **one** box to show a **disadvantage** of using a software package to help work out the budget rather than using a calculator, pen and paper.

	Tick <b>one</b> box only
The formulae could be wrong	
The wrong prices could be input	
A virus may corrupt the information	
Multiple printouts could be produced	

(1 mark)

5
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**Turn over for the next question**



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

(a) Complete each of the sentences below.

(i) Ordering groceries online starts with a customer placing an order by

	Tick <b>one</b> box only
telephoning the order to the supermarket.	
sending the order by letter to the supermarket.	
sending the order to the supermarket from their PC.	

(1 mark)

(ii) The customer then usually pays for the groceries by

	Tick <b>one</b> box only
sending a cheque to the supermarket.	
going to the supermarket and paying by cash.	
the supermarket taking the money from their credit card.	

(1 mark)

(iii) Finally, the customer receives the groceries by

	Tick <b>one</b> box only
a van from the supermarket delivering them to their house.	
collecting them from the supermarket at an agreed time.	
collecting them from an agreed pickup point near their house.	

(1 mark)

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

Advantage 1 .....

Advantage 2 .....

(2 marks)

(c) Give **one** disadvantage to the **customer** of ordering their groceries online.

Disadvantage .....

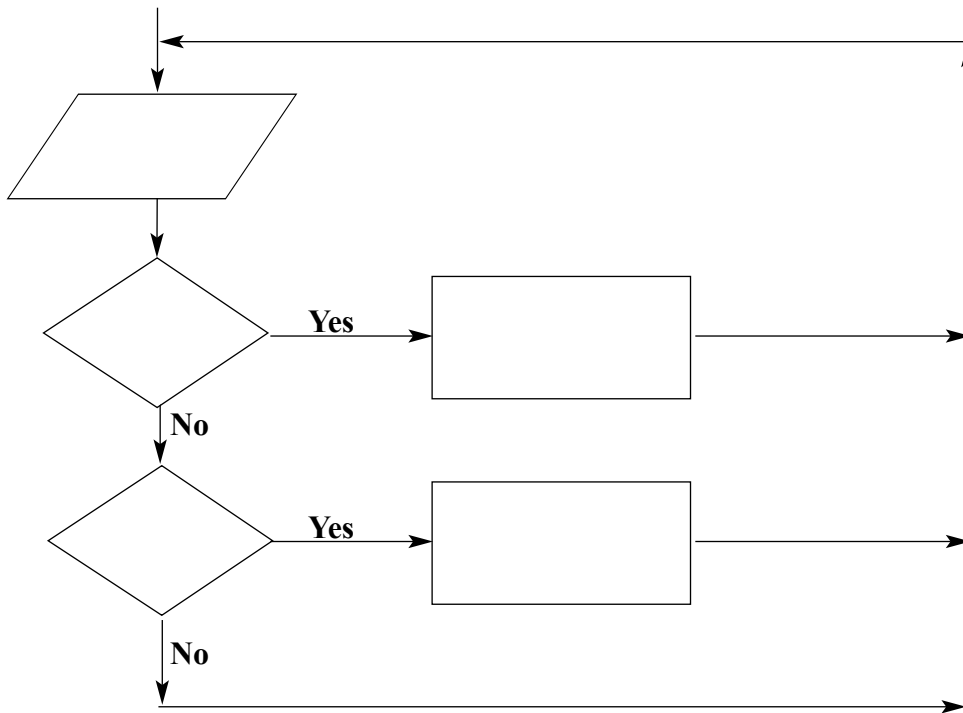
(1 mark)



12 A home central heating system uses a monitoring and feedback system to control the temperature of each room in the house.

(a) The system is used to maintain the temperature of the living room at 23°C. Complete the flowchart to show how this system works by writing a letter for each answer in the flowchart boxes below.

- |   |  |
|---|--|
| <b>A</b> Turn off the heating             | <b>E</b> Is the temperature greater than 23°C? |
| <b>B</b> Turn on the heating              | <b>F</b> Is the temperature less than 23°C?    |
| <b>C</b> Disconnect the heating           | <b>G</b> Is the temperature equal to 23°C?     |
| <b>D</b> Read the temperature in the room | <b>H</b> Print the temperature of the room     |



(3 marks)

(b) What device would be needed to read the temperature in the room?

.....  
(1 mark)

(c) Why may the central heating system need such a device in each room?

.....  
(1 mark)

Question 12 continues on the next page



- (d) Tick **one** of the following to show how often the temperature of the room should be read.

	Tick <b>one</b> box only
Every week	
Every night	
Every hour	
Every minute	

*(1 mark)*

<b>6</b>



**13** An increasing number of people use e-mail (electronic mail) as a method of communication. For many of these people it is gradually replacing other means of communication such as fax, telephone and post.

(a) Explain what is meant by the term e-mail.

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

(b) (i) Which **one** of the following is an **advantage** of using e-mail compared to using **post**?

	Tick <b>one</b> box only
The e-mail will usually arrive quicker than the post	
The e-mail can be sent worldwide	
The e-mail can contain pictures	

*(1 mark)*

(ii) Give **one** other advantage of using e-mail compared to using **post**.

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

(iii) Give **one** disadvantage of using e-mail compared to using **post**.

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

**Turn over for the next question**

4



**Turn over ▶**

**14** A school stores information about pupils on a computer system. Data validation is an important part of the processing of pupil information.

(a) Tick **one** box in each part below that best describes how data validation works.

(i) Data validation is the checking of data during

	Tick <b>one</b> box only
output.	
input.	
processing.	

(1 mark)

(ii) The data is checked by

	Tick <b>one</b> box only
hardware.	
software.	
people.	

(1 mark)

(iii) The data is checked to make sure

	Tick <b>one</b> box only
it is totally correct.	
it is reasonable.	
it is spelt correctly.	

(1 mark)

(b) Which **one** of the following is a method of data validation?

	Tick <b>one</b> box only
Lesson check	
Attendance check	
Presence check	

(1 mark)

(c) Explain how an examination mark could be validated using a range check.

.....

.....

.....

(2 marks)



15 (a) Simulators are used to give ambulance drivers experience of driving an ambulance at high speed.

(i) Which **two** of the following are important reasons why a simulator would be used for this rather than driving on the road?

	Tick <b>two</b> boxes only
The driver would not be in any danger using a simulator	
Simulators are widely used throughout the country	
Simulators are also used by the police and the fire brigade	
Road and weather conditions on the simulator can be changed as needed	
The simulator could be used during lunchtime	

(2 marks)

(ii) Simulators use rules built into the controlling software. Which **one** of the following would be a rule that should reasonably be built into this driving simulator?

	Tick <b>one</b> box only
All dual carriageway driving must be fast	
Ambulance drivers do not start work until 8 am	
The distance taken to stop will vary with weather conditions	

(1 mark)

(b) Which **one** of the following types of application software is often used for financial modelling?

	Tick <b>one</b> box only
Database	
Desktop publishing	
Spreadsheet	

(1 mark)

(c) Applications software can be used for modelling a variety of situations. Explain briefly what is meant by the term **modelling**.

.....

.....

.....

(2 marks)



- 16** A video shop stores information about its customers in a database table.  
As a data user, the video store must register under the 1998 Data Protection Act.

- (a) Tick **three** boxes to show which of the following are responsibilities of the video store as a data user.

	Tick <b>three</b> boxes only
Information must not be looked at by the video shop staff	
Information must not be excessive for the purpose	
Information must not be transferred to countries outside the European Union	
Information must not contain the name of the customer	
Information must be changed at the request of the customer	
Information must be obtained fairly/lawfully	

(3 marks)

- (b) Part of the customer database table is given below.

<b>ID Number</b>	<b>Surname</b>	<b>First name</b>	<b>House No.</b>	<b>Postcode</b>	<b>Date of Birth</b>
0021	Jones	Jon	6	ZZ23 2KJ	20/11/80
0034	Smith	Anne	78	ZZ20 3GT	12/08/75
0156	Ali	Ahmed	17	ZZ16 1KN	06/02/82
0234	Collins	Sarah	2	ZZ23 4PH	31/01/70
0452	Chan	Michael	113	ZZ12 8PR	15/10/84

- (i) How many records are shown in this database table?

Answer

(1 mark)

- (ii) Which is the key field in this database table?

.....

(1 mark)

- (iii) Which **one** of the following is the best definition of a key field?

	Tick <b>one</b> box only
A key field must be the first field in a database table	
A key field must be a combination of letters and numbers	
A key field must be unique in a database table	

(1 mark)





- (c) As well as the customer table, the video store uses two other linked tables. Name **one** other table it would be sensible for them to use.

.....  
(1 mark)

- (d) Give **one** reason why the video store should link tables together.

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

**Turn over for the next question**

8
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**17** A large chain of newsagent shops has decided to look at the possibility of buying a new computer system to improve the running of its business. The manager has employed an IT consultant to carry out a feasibility study. Part of this feasibility study will involve the IT consultant using interviews, questionnaires or observation to collect information about the existing system.

- (a) (i) Which **one** of the following is an **advantage** of using **interviews** rather than **questionnaires** to collect information from the employees?

	Tick <b>one</b> box only
Immediate feedback of information	
Employees will never lie in interviews	
Results can be displayed as graphs	

(1 mark)

- (ii) Which **one** of the following is a **disadvantage** of using **questionnaires** rather than **interviews** to collect information from the employees?

	Tick <b>one</b> box only
Information cannot be put into a database	
Employees always lie in questionnaires	
Questionnaires are often not completed	

(1 mark)

- (iii) Give **one advantage** of using **observation** of staff to collect this information.

.....

.....

(1 mark)



(b) If the newsagent decides to go ahead, Analysis, Design, Implementation, Testing and Evaluation will all be stages in the production of their new information system. At which stage does each of the following take place?

(i) Planning the layout of the reports that will go to each store.

.....  
(1 mark)

(ii) Reviewing if the new system meets the performance criteria.

.....  
(1 mark)

(iii) Comparing the results from the Test Plan with the actual results.

.....  
(1 mark)

6
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18 From the list given below, choose which term **best matches** the definition in the left-hand column of the table below. Write your answer in the spaces provided.

back-up copy	data encryption	password
calibrate	field	query
DVD ROM	mail-merging	RAM
data validation	MICR	record
data verification	OCR	ROM
data logging	OMR	web browser

Definition	Term which best matches the definition
A copy of data or programs in computer readable form, kept in case the working copy is lost or damaged.	
Inserting fields from a database file into a standard letter to produce personalised letters.	
A method of Data Capture that is used by banks to input information from cheques.	

(3 marks)

3
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**Turn over for the next question**



**19** A travel company is going to install a computer system for the staff to book holidays online. They need to design a user interface for the holiday booking system.

- (a) Which **one** of the following is a type of user interface that could be used for the new system?

	Tick <b>one</b> box only
Sensor driven	
Link driven	
Menu driven	

(1 mark)

- (b) Which **one** of these factors should be taken into consideration when designing the new user interface?

	Tick <b>one</b> box only
Consistency of layout	
Cheap holidays	
The need to take regular breaks	

(1 mark)

- (c) Give **two** other factors that should be taken into consideration when designing the new user interface.

Factor 1 .....

.....

Factor 2 .....

.....

(2 marks)

4
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**END OF QUESTIONS**

