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For Examiner's Use

General Certificate of Secondary Education
June 2009



**INFORMATION AND COMMUNICATION TECHNOLOGY 3522/H
(SPECIFICATION B) (FULL COURSE)
Written Paper
Higher Tier**

H

Tuesday 19 May 2009 1.30 pm to 3.30 pm

<p>You will need no other materials. You may use a calculator.</p>

Time allowed: 2 hours

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 120.
- 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	
2		6	
3		7	
4		8	
Total (Column 1) →			
Total (Column 2) →			
TOTAL			
Examiner's Initials			



J U N 0 9 3 5 2 2 H 0 1

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

1 The Ship Restaurant has this old menu.

<p>The Ship Restaurant</p> <p>Freshly made food</p> <p>Starters</p> <p>Prawn Cocktail £4.95</p> <p>House Pate £4.50</p> <p>Garlic Mushrooms £4.50</p> <p>Main Courses</p> <p>Rack of Lamb £11.95</p> <p>Steak au Poivre £10.95</p> <p>Sea Food Thermidor £10.95</p> <p>Vegetable Bake £6.85</p> <p>Sweets</p> <p>Sticky Toffee Pudding £4.50</p> <p>Pavlova £5.50</p> <p>Banana Split £4.50</p> <p>Early Bird Menu 5pm to 6pm</p> <p>Book on 0997 2341293</p>

The restaurant manager changes the old menu to produce this new menu.

A → **The Ship Restaurant**

B → Early Bird Menu 5pm to 6pm

C → **Main Courses**

D →

The Ship Restaurant

Freshly made food

Starters

Prawn Cocktail £4.95

House Pate £4.50

Garlic Mushrooms £4.50

Main Courses

Rack of Lamb £11.95

Steak au Poivre £10.95

Sea Food Thermidor £10.95

Vegetable Bake £6.85

Sweets

Sticky Toffee Pudding £4.50

Pavlova £5.50

Banana Split £4.50

Book on 0997 2341293



1 (a) Describe **two** ways the line of text labelled **C** has been changed.

Way 1

.....

Way 2

.....

(2 marks)

1 (b) Complete the sentences using words from this list.

a camera
a photograph
a wizard
an autoshape
clip art
word art

1 (b) (i) Label **A** points to (1 mark)

1 (b) (ii) Label **B** points to and text box which have
been grouped. (1 mark)

1 (b) (iii) Label **D** points to (1 mark)

1 (c) The manager applied design principles when the menu was changed.
Tick **three** boxes to show good design principles.

	Tick three boxes
Use a spreadsheet	
Include sound and video where possible	
Avoid too much fussiness caused by overuse of the software features	
Use obscure or unfamiliar words without explanation	
Make use of the features of the software to make the menu more interesting	
The font should be easy to read	

(3 marks)

Question 1 continues on the next page

Turn over ▶



1 (d) The manager saves the new menu as a file on backing storage.

1 (d) (i) Tick **one** box to show backing storage to save the file on.

	Tick one box
RAM memory	
Modem	
Flash memory stick	
DVD-ROM	
Network	

(1 mark)

1 (d) (ii) State **two** other types of backing storage the file can be saved on.

Type 1

Type 2

(2 marks)

1 (d) (iii) Tick **one** box to show the most likely file type.

	Tick one box
.doc	
.ppt	
.xls	
.html	
.xyz	

(1 mark)

1 (e) The old menu is also saved on backing storage.

1 (e) (i) Tick **two** boxes to show which of these statements are most likely to be true.

	Tick two boxes
The new menu has a larger file size than the old menu	
The new menu and the old menu have exactly the same file size	
The new menu loads more slowly than the old menu	
The old menu has been scanned	
The old menu loads more slowly than the new menu	

(2 marks)

1 (e) (ii) Give **one** reason for your answers to part 1(e)(i).

.....

.....

(1 mark)



Turn over for the next question

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**

Turn over ▶



0 5

- 2 A decorator uses a computer to calculate the cost of redecorating a kitchen for a client. This information is displayed on the monitor screen.

	A	B	C	D
1	Estimated costs for redecorating the kitchen			
2				
3	Item to be purchased	Unit cost	Quantity needed	Total cost for each item
4	Can of emulsion paint	£ 25.00	2	£ 50.00
5	Can of gloss paint	£ 10.00	3	£ 30.00
6	Paint brush	£ 5.50	4	£ 22.00
7	Laminate flooring (per square metre)	£ 15.50	10	£155.00
8	Cooker	£500.00	1	£500.00
9				
10	Total cost for the kitchen			£757.00

- 2 (a) State the type of software the decorator has used.

.....
(1 mark)

- 2 (b) Row 4 of the spreadsheet shows that 2 cans of emulsion paint are needed at a cost of £25 each.
Tick **two** boxes to show which of these statements are true.

	Tick two boxes
4 cans of gloss paint are needed at a cost of £10.00 each	
10 square metres of laminate flooring are needed at a cost of £20 each	
4 paint brushes are needed at a cost of £5.50 each	
3 cans of gloss paint are needed at a cost of £10.00 each	
The total cost for redecorating the kitchen is £1000	

(2 marks)

- 2 (c) (i) Write in the box the cell reference of a cell that contains text.

(1 mark)

- 2 (c) (ii) Write in the box the cell reference of a cell that contains a number.

(1 mark)



- 2 (d) Some cells contain a formula.

Label	Formula
A	=SUM(D4:D8)
B	=B6*C6
C	=C6*D6
D	=SUM(D4:D10)
E	=SUM(B6:C6)

- 2 (d) (i) Write in the box the label of the formula in cell D6.

(1 mark)

- 2 (d) (ii) Write in the box the label of the formula in cell D10.

(1 mark)

- 2 (e) (i) Tick **two** boxes to show the advantages to the decorator in using the software rather than working out the cost by hand.

	Tick two boxes
Costs cannot be changed	
The decorator can avoid paying tax	
It is faster to write an estimate on a scrap of paper	
The decorator can rely on the software to do accurate calculations if it has been set up correctly	
The client can be given a neatly printed estimate	

(2 marks)

- 2 (e) (ii) State **one** other advantage to the decorator in using the software.

.....

(1 mark)

Question 2 continues on the next page

Turn over ▶



2 (f) The decorator wants a computer that can be taken to a client's house so that estimates can be done on the spot and a printed copy given to the client.

2 (f) (i) Tick **one** box to show what type of computer could be used.

	Tick one box
Printer server	
Laptop	
Desktop	
Mainframe	
File server	

(1 mark)

2 (f) (ii) State **one** other type of computer that could be used.

.....
(1 mark)

2 (g) The decorator's computer system could have these features.

Label	
A	touch screen
B	router
C	touch pad
D	scanner

Label	
E	speakers
F	modem
G	printer
H	flash memory stick

2 (g) (i) Write **one** label in each box to show **two** input devices that would be suitable.

Input device 1

Input device 2

(2 marks)

2 (g) (ii) Write **one** label in the box to show **one** output device that would be suitable.

(1 mark)



- 3 A health centre uses a database to store patients' information. Patients fill in a form when they register with the health centre and a receptionist types in the data.

This is a part of the database.

Patient Number	Name	Date of Birth	Gender	Doctor
01938	Baty	13/13/1972	M	McHenry
49073	Attwood	13/11/2000	F	Tysome
28985	Phillips	02/12/1995	M	McHenry
30234	Wolf	09/07/1982	M	Lynch
30234	Nibert	09/07/1982	F	Tysome
10056	Jones	14/07/1947	F	Tysome

- 3 (a) Write in the box the number of records shown.

(1 mark)

- 3 (b) The receptionist entered the data for Wolf then the data for Nibert. The receptionist made a mistake when entering the **Patient Number** for Nibert. The **Patient Number** is a key field.

- 3 (b) (i) Give **one** reason why the **Patient Number** for Nibert must be incorrect.

.....
.....

(1 mark)

- 3 (b) (ii) Describe **one** way this error could be avoided.

.....
.....

(1 mark)

- 3 (c) Nibert and Wolf have the same **Date of Birth** on the database. Explain why this could be correct.

.....
.....

(1 mark)

Question 3 continues on the next page

Turn over ►



Patient Number	Name	Date of Birth	Gender	Doctor
01938	Baty	13/13/1972	M	McHenry
49073	Attwood	13/11/2000	F	Tysome
28985	Phillips	02/12/1995	M	McHenry
30234	Wolf	09/07/1982	M	Lynch
30234	Nibert	09/07/1982	F	Tysome
10056	Jones	14/07/1947	F	Tysome

- 3 (d) (i) Tick **one** box to show the name of the field that has been coded.

	Tick one box
Patient Number	
Name	
Date of Birth	
Gender	
Doctor	

(1 mark)

- 3 (d) (ii) Tick **one** box to show why codes are used.

	Tick one box
It is faster to enter the data	
It is more secure	
There are fewer mistakes in the grammar	
People have short attention spans	
It is more reliable	

(1 mark)

- 3 (d) (iii) Give **one** other reason why codes are used.

.....

.....

(1 mark)

- 3 (d) (iv) Tick **two** boxes to show the features of a useful code.

	Tick two boxes
The code is encrypted	
The code can be communicated over a wireless network	
The code is easy to understand and easy to remember	
The length of the code is much shorter than the original data	
The code can be set to music	

(2 marks)



3 (e) The **Date of Birth** has been entered incorrectly for one patient.

3 (e) (i) Tick **one** box to show which patient has the incorrect **Date of Birth**.

	Tick one box
Baty	
Attwood	
Phillips	
Wolf	
Nibert	

(1 mark)

3 (e) (ii) Explain how you know this patient has an incorrect **Date of Birth**.

.....

.....

(1 mark)

3 (e) (iii) Describe a verification check that would help prevent this error in this context.

.....

.....

(1 mark)

3 (e) (iv) Describe a validation check that would help prevent this error.

.....

.....

.....

.....

.....

.....

.....


(3 marks)

15

Turn over ▶



- 4 A web programmer is building a website to help people find holiday accommodation, including self-catering cottages. The programmer writes in HTML (Hyper Text Mark-up Language) and displays it in a web browser.
The programmer opens a file called hazelcottage.htm which is shown below and edits it.

Line	HTML	Display in Browser
1	<head>	 <p>Microsoft®Internet Explorer</p>
2	<title>Hazel Cottage</title>	
3	</head>	
4	<body>	
5	<center>	
6		
7		
8	<bold>	
9	<h1>Hazel Cottage</h1>	
10	</bold>	
11		
12		
13		
14	<p>Check out the details on</p>	
15	www.hazelcottage.com	
16		
17	</center>	
18	</body>	
19	</html>	

- 4 (a) The programmer edits this HTML to produce another web page about a different self-catering cottage called Willow Cottage.

- 4 (a) (i) Edit **Line 9** to change the name of the cottage to Willow Cottage.

HTML to be edited	<h1>Hazel Cottage</h1>
Edited HTML	

(2 marks)

- 4 (a) (ii) A picture of Willow Cottage is saved as willowcottage.jpg.
Write down the number of the line which should be edited so that the picture of Willow Cottage will be displayed.
Edit the line so that the picture of Willow Cottage will be displayed.

Number of line to be edited	
Edited HTML	

(3 marks)



- 4 (a) (iii) **Two** other lines must be edited.
Make appropriate edits to these lines.

Number of line to be edited	
Edited HTML	

Number of line to be edited	
Edited HTML	

(4 marks)

- 4 (b) When the editing is finished the file needs to be saved. The programmer uses the Save command.

- 4 (b) (i) Tick **one** box to show why this is a mistake.

	Tick one box
The web page for Willow Cottage would be saved as willowcottage.htm	
The web page for Willow Cottage would be saved as hazelcottage.htm	
The web page for Hazel Cottage would be saved as willowcottage.htm	
The web page for Hazel Cottage would be saved as hazelcottage.bak	
The web page for Willow Cottage would be saved as willowcottage.bak	

(1 mark)

- 4 (b) (ii) State the command the programmer should have used instead of Save.

.....
(1 mark)

Question 4 continues on the next page

Turn over ▶



4 (c) The holiday accommodation website has a search engine designed specifically to search it.

One of the inputs is:

Select accommodation type	
<input type="checkbox"/> All	<input type="checkbox"/> Serviced Apartment
<input type="checkbox"/> Hotel	<input type="checkbox"/> Self-Catering
<input type="checkbox"/> Bed & Breakfast	<input type="checkbox"/> Caravan & Camping

State **two** other inputs that might be used to search the website.

Input 1

Input 2

(2 marks)

4 (d) All the web pages for all the holiday accommodation will be saved together in a folder called Holidays and each web page will have at least one picture associated with it. Describe how to organise the folders so that all the web pages and all the picture files are in the Holidays folder but they are not all mixed up together. You may draw a diagram.

.....

.....

.....

.....

(2 marks)



5 When students log on to a LAN (Local Area Network) they have to enter a username and password.

5 (a) (i) Tick **one** box to show a sensible rule about using passwords.

	Tick one box
You should write your password on a piece of paper and stick it on the computer	
You should write your password in your diary	
You should tell your friends your password in case you forget it	
You should change your password frequently	
You should use the name of your pet as a password	

(1 mark)

5 (a) (ii) State **one** other sensible rule about using passwords.

.....

.....

(1 mark)

5 (b) Describe in detail how you would change your password.

.....

.....

.....

.....

.....

.....

.....

(3 marks)

Question 5 continues on the next page

Turn over ▶



5 (c) In parts (c)(i) to (c)(iv), each reason you give should be different.

A student logs on to the network.

5 (c) (i) The network has been set up to prevent students downloading music.
Give **one** reason why the network has been set up to prevent this.

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

5 (c) (ii) The network has been set up to prevent students downloading and installing software.
Give **one** different reason why the network has been set up to prevent this.

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

5 (c) (iii) The network prevents students accessing each others' user areas and files.
Give **one** different reason why the network has been set up to prevent this.

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

5 (c) (iv) The network prevents students accessing some websites.
Give **one** different reason why the network has been set up to prevent this.

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

5 (d) Sometimes students using the network find that it is very slow.
Give **one** reason why network access might be slow and suggest a solution.

Reason

.....

Solution

.....
(2 marks)



- 5 (e) Draw a labelled diagram of a LAN showing at least three networked computers and a file server. You should include other hardware that might be connected to the LAN.

(4 marks)

15

Turn over for the next question

Turn over ▶



6 ParkSafely is a company that manages car parks. It is considering whether to use an ICT system to help manage the car parks.

6 (a) Tick **three** boxes to show reasons why ParkSafely would use an ICT system.

	Tick three boxes
The cost of running an ICT system is cheaper than using the current manual system	
Information on the availability of parking spaces can be displayed automatically	
ParkSafely can charge more	
ParkSafely also own car washes	
All the car parks ParkSafely own are run in very similar ways	
ParkSafely have resurfaced all their car parks	

(3 marks)

6 (b) ParkSafely do a feasibility study to find out if they should use an ICT system. Tick **three** boxes to show what should be done as part of a feasibility study.

	Tick three boxes
Purchase all the new hardware that would be needed	
Train car park workers to use the ICT system	
Test the software that will be used	
Interview car park workers to find out if there are any problems with the current way in which the car parks are managed	
Estimate the cost of new software and hardware	
Briefly describe what the proposed ICT system could be used for	

(3 marks)



- 6 (c) ParkSafely install an ICT system that keeps track of the number of cars in a car park using barriers across the entrances and exits. The barriers are controlled by the ICT system.

Write down the labels in order to show what the ICT system should do when a car approaches the barrier and enters the car park.

Label	Statement
A	Add 1 to the number of cars in the car park
B	If the car park is full, switch the full sign on
C	Issue a ticket
D	Detect the car
E	Open the barrier, wait for the car to pass through and close the barrier

Label

(2 marks)

Question 6 continues on the next page

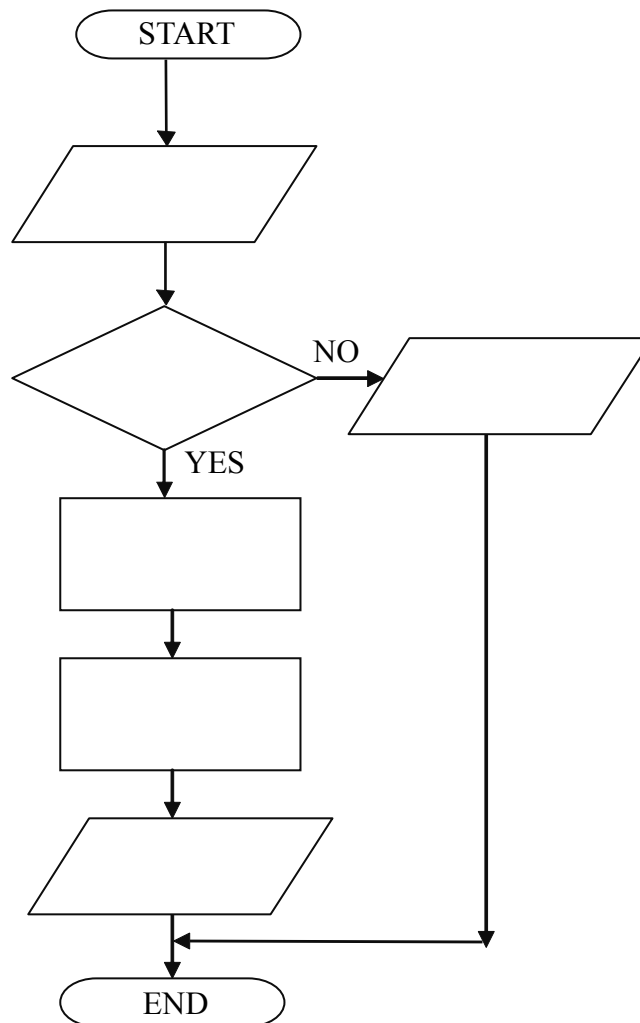
Turn over ▶



- 6 (d) Drivers are given a ticket when they park their car. Drivers pay at a pay station just before they return to their car.

Write a label in each box of the flowchart to show what the ICT system should do when a car leaves the car park.

Label	Statement
A	Switch off the car park full sign
B	Open the barrier, wait for the car to pass through and close the barrier
C	Subtract 1 from the number of cars in the car park
D	Display the message: "Please pay at the pay station" and return the ticket to the driver
E	Read the ticket
F	Has the amount due been paid?



(3 marks)



- 6 (e) Write a label next to each ICT system life cycle task to show what the task includes.

Label	What the task includes
A	Entering extreme data to check that the system responds correctly to unusual inputs
B	Using flowcharts to show what processing will be done
C	Using the ICT system to manage car parks
D	Checking the system as it is being used to make sure it is still working as expected
E	Preparing instructions for users to show them how to use the ICT system

- 6 (e) (i)

ICT system life cycle task	Label
Systems Analysis and Design	

 (1 mark)

- 6 (e) (ii)

ICT system life cycle task	Label
Documentation	

 (1 mark)

- 6 (e) (iii)

ICT system life cycle task	Label
Testing	

 (1 mark)

- 6 (e) (iv)

ICT system life cycle task	Label
Monitoring	

 (1 mark)

Turn over for the next question

Turn over ▶



7 A school uses an ICT system to register the attendance of pupils. Each pupil has their own identification card.

7 (a) When a pupil arrives at school, the pupil registers by swiping their identification card through a card reader.

7 (a) (i) Tick **one** box to show how information could be recorded on the identification card.

	Tick one box
Thumb print	
Magnetic stripe	
Questionnaire	
Magnetic Ink Character Recognition (MICR)	
Voice recognition	

(1 mark)

7 (a) (ii) Describe **one** other way in which information could be recorded on an identification card.

.....

.....

(1 mark)

7 (b) Teachers notice that sometimes pupils who are not in class are registered as present.

7 (b) (i) Tick **two** boxes to show how this could happen.

	Tick two boxes
Some pupils did not register using their identification cards	
Absent pupils gave their identification cards to other pupils who registered for them	
Pupils arrived before the ICT system was switched on	
Some pupils registered using their identification cards then went home	
Some pupils are not wearing school uniform	

(2 marks)

7 (b) (ii) Give **one** other reason why pupils who are not in class could be registered as present.

.....

.....

(1 mark)



- 7 (c) (i) Tick **two** boxes to show ways to make registration more accurate.

	Tick two boxes
Ensure pupils can only enter and leave school through turnstiles which are operated using their identification cards	
Print each pupil's identification number on their identification card	
Make identification cards of more robust plastic	
Teachers should closely supervise pupils who are registering using their identification cards	
Allow parents to register their children	

(2 marks)

- 7 (c) (ii) A governor has suggested that registration might be more accurate if pupils used their identification cards to register in every lesson.

Give **one** reason why this might not be done.

.....

.....

(1 mark)

- 7 (c) (iii) Describe **one** other way to make registration more accurate.

.....

.....

(1 mark)

- 7 (d) Tick **three** boxes to show which of these statements are most likely to be true.

	Tick three boxes
Pupils who arrive late do not have to register	
The ICT system automatically contacts parents or carers to let them know if their children are absent	
The identification card has to be replaced every week	
A picture of the pupil is printed on the identification card so that teachers can check it belongs to the pupil using it	
The ICT system automatically e-mails the police to let them know who is absent	
A record of a pupil's attendance is kept on the ICT system	

(3 marks)

Question 7 continues on the next page

Turn over ▶



7 (e) An ICT system for registration could be developed to do other tasks.
Describe **three** other tasks this ICT system could do if developed further.

Task 1

.....

Task 2

.....

Task 3

.....

(3 marks)

15



8 (a) Some convicted criminals complete their sentences at home. They can be fitted with a tag that identifies them. The tag can communicate with the police computer using a wireless network fitted in the home of the criminal. This helps the police computer track the criminal.

8 (a) (i) Tick **three** boxes to show why criminals are tagged.

	Tick three boxes
Criminals are tagged so that neighbours will know who they are	
The location of all criminals can be monitored	
The police like to use the latest technology	
There is a shortage of accommodation in prisons	
The police can spend more time on other tasks	
A criminal can get used to living at home again before their prison sentence is complete	

(3 marks)

8 (a) (ii) Tick **two** boxes to show why tagging may not be effective in tracking criminals.

	Tick two boxes
If the wireless signal is too strong, the police computer cannot know the location of the tag	
If the tag is removed, the police computer will not know the location of the criminal	
If the tag is out of range of the wireless network, the police computer will not know its location	
If the criminal lives close to a mobile telephone mast, the police computer will not be able to communicate with the tag	
The presence of the criminal's family will disturb the wireless signal	

(2 marks)

8 (a) (iii) Give **one** other reason why tagging may not be effective in tracking criminals.

.....

.....

(1 mark)

Question 8 continues on the next page

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