General Certificate of Secondary Education
June 2006

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

H

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Tuesday 23 May 2006   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 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.

3521/H

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

1   A veterinary surgery is going to install a new computer system. The vets must choose suitable hardware to use in their practice.

(a)   Give **three** input devices that would be suitable for use in their practice.

Input device 1 ....

Input device 2 ....

Input device 3 ....
(3 marks)

(b)   Give **three** output devices that would be suitable for use in their practice.

Output device 1 ....

Output device 2 ....

Output device 3 ....
(3 marks)

(c)   Give **two** storage devices that would be suitable for use in their practice.

Storage device 1 ....

Storage device 2 ....
(2 marks)

(d)   The vets sometimes use e-mail as a means of communication. Describe what is meant by e-mail.

....

....

....
(2 marks)

10

2 (a) Tick **one** box next to each activity listed in the table below to show the stage of the system life cycle during which it would take place.

		Analysis	Design	Implementation	Testing	Evaluation
(i)	Carrying out a feasibility study					
(ii)	Deciding the features of the software needed					
(iii)	Entering all the records into a database					
(iv)	Entering test data					
(v)	Identifying the problems that need solving					
(vi)	Planning screen and report layouts					
(vii)	Preparing a test plan					
(viii)	Reviewing how well the new system works					
(ix)	Setting up performance criteria					
(x)	Suggesting future improvements to the new system					

(10 marks)

(b) Describe in detail what happens during the **testing** stage.

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(3 marks)

13

Turn over ▶

3 A take away restaurant uses a spreadsheet to help to record each night's takings.
Part of this spreadsheet is shown below.

	A	B	C	D	E
1		**Dish bought**	**Unit price**	**Number sold**	**Takings**
2	**Starters**	Poppadum	£0.20	20	£4.00
3		Onion Bhaji	£1.75	5	£8.75
4		Mixed Kebab	£2.75	3	£8.25
5					
6	**Main Dishes**	Chicken Tikka	£4.95	12	£59.40
7		Chicken Korma	£4.25	5	£21.25
8		Lamb Bhuna	£5.15	8	£41.20
9		Prawn Curry	£4.75	4	£19.00
10		Vegetable Curry	£3.75	7	£26.25
11					
12	**Sundries**	Naan Bread	£1.00	15	£15.00
13		Rice	£1.60	30	£48.00
14		Bombay Potato	£1.25	5	£6.25
15		Mixed Pickle	£0.60	2	£1.20
16		Vegetable Bhaji	£2.25	1	£2.25
17					
18		Delivery charge	£1.00	10	£10.00
19					
20				Total Takings	£270.80

(a) Which cell contains the number of Naan Breads sold?

.... *(1 mark)*

(b) (i) The cells in this spreadsheet contain different types of information.
For example, the cell B2 contains text.
Give **one** more cell that contains text.

.... *(1 mark)*

(ii) Tick **two** boxes to show cells which contain currency.

	Tick **two** boxes only
C1	
C2	
C3	
D4	
D5	

(2 marks)

(c) Tick **two** boxes to show formulae that could be in cell E20.

	Tick **two** boxes
=SUM(E2:E4)	
=SUM(E2:E16)	
=SUM(E2:E17)	
=SUM(E2:E18)	
=SUM(E2:E19)	

(2 marks)

(d) (i) The cost of delivery is increased to £1.50. Name the cell whose contents would have to be changed.

Cell ....

(1 mark)

(ii) Name **two** other cells which would change automatically as a result.

Cell 1 ....

Cell 2 ....

(2 marks)

(e) Give **two** advantages of using a spreadsheet to work out the takings compared with working out the takings by hand.

Advantage 1 ....

....

Advantage 2 ....

....

(2 marks)

(f) Describe how the owner of the take away restaurant could use the spreadsheet for financial modelling.

....

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(3 marks)

Turn over ▶

14

4 A weather station is located on the seafront of a large seaside town.

(a) Name **one** sensor that could be used to take the temperature.

....
(1 mark)

(b) What is the name given to this automatic process of collecting and recording data at regular fixed intervals?

....
(1 mark)

(c) Give **one** advantage of the weather station using more than one sensor to record the temperature.

....

....
(1 mark)

(d) Give **two** advantages to the weather station of collecting data automatically rather than by hand.

Advantage 1 ....

....

Advantage 2 ....

....
(2 marks)

(e) Each sensor used by the weather station has to be calibrated to a known scale before it is used. Explain why this is important.

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(2 marks)

7

5 Describe **four** tasks that are carried out by an operating system.

Task 1 ....

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Task 2 ....

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Task 3 ....

....

Task 4 ....

....

(4 marks)

4

Turn over for the next question

Turn over ▶

6 A shop specialises in selling new and used computers. A database is used to store information on the computers for sale. Part of the database file is shown below.

Product ID	Processor	RAM	Hard disk (size)	Monitor (included)	New or Used	Number in stock	Price of each (£)
PC005	AMD 2200	256 Mb	40 Gb	17 inch SVGA	N	3	399
PC009	AMD 2200	256 Mb	80 Gb	17 inch SVGA	N	2	429
PC012	Celeron 330	256 Mb	80 Gb	None	N	5	299
PC022	Celeron 330	256 Mb	80 Gb	17 inch TFT	N	2	499
PC027	Pentium 3	512 Mb	80 Gb	17 inch TFT	N	10	599
PC029	AMD 1500	128 Mb	20 Gb	15 inch VGA	U	1	199
PC038	AMD 1500	256 Mb	40 Gb	None	U	2	199
PC039	Celeron 200	128 Mb	10 Gb	None	U	1	129
PC040	Pentium 4	512 Mb	160 Gb	15 inch LCD TFT	N	6	799
PC042	AMD 3000	512 Mb	160 Gb	15 inch LCD TFT	N	4	699
PC046	AMD 3000	1 Gb	200 Gb	None	N	8	649
PC047	Celeron 200	128 Mb	8 Gb	15 inch VGA	U	1	9999
PC048	Pentium 4	1 Gb	200 Gb	15 inch LCD TFT	N	5	899
PC049	Pentium 2	64 Mb	10 Gb	None	U	5	99

(a) (i) The database contains an obvious mistake. State what this mistake is, and give a reason why you think it is a mistake.

Mistake ....

Reason ....

....

(2 marks)

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

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....

(2 marks)

(b) A code has been used to show whether the computer is new or used.

(i) Tick **two** boxes to show the advantages of coding the data.

	Tick **two** boxes only
It uses more numbers than letters	
It makes it difficult for hackers to access information	
It takes less time to enter data	
It takes up less storage space	
It can be used by anyone	

(2 marks)

(ii)   Give **one** disadvantage of coding data.

Disadvantage ....

....

(1 mark)

(c)   (i)   Which is the **key field** in this database file?

....

(1 mark)

(ii)   Explain why the field you have chosen is suitable to be used as a key field.

....

....

(1 mark)

(d)   In order to search the database, the following commands are used.

List
For
Equals
Greater than
Less than
And
Or

So the search
List Product ID **For** RAM **Equals** 1 Gb
would produce the result

PC046
PC048

What would be the result of the following searches?

(i)   **List** Product ID **For** Number in stock **Equals** 6.

....

....

(1 mark)

(ii)   **List** Product ID, Processor **For** Hard disk (size) **Greater than** 190 Gb.

....

....

(2 marks)

Question 6 continues on the next page

Turn over ▶

(e) Write down the instructions needed to produce a list of Product ID and Price of each (£), where the price of the computer is between £299 and £499.

....

....

....

(3 marks)

15

7 A computerised job search facility is going to be installed in an employment agency. The system will have a graphical user interface (GUI).

(a) Which **three** of the following are important factors that should be considered when designing the new interface?

	Tick **three** boxes
Availability of help	
Consistency of layout	
How many jobs are available	
The age of the person looking for a job	
The starting salary for each job	
Use of colour and sound	

(3 marks)

(b) Give **two** advantages of using a graphical user interface.

Advantage 1 ....

....

Advantage 2 ....

....

(2 marks)

(c) Name **two** other types of user interface.

User interface 1 ....

User interface 2 ....

(2 marks)

7

8 On-line shopping for items such as food, books and CDs is increasingly becoming an everyday part of life in the twenty-first century.

(a) Describe possible **advantages** of on-line shopping to both the companies who operate it and to their customers.

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Turn over ▶

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(6 marks)

(b) Describe possible **disadvantages** of on-line shopping to both the companies who operate it and to their customers.

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(4 marks)

END OF QUESTIONS

10