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General Certificate of Secondary Education
June 2003

**INFORMATION AND COMMUNICATION TECHNOLOGY
SPECIFICATION A
(FULL COURSE)
FOUNDATION TIER**

3521/F



Friday 20 June 2003 1.30 pm to 3.00 pm

F

| |
|---|
| <p>No additional materials are required. You may use a calculator.</p> |
|---|

Time allowed: 1 hour 30 minutes

Instructions

- Use a blue or black ink or ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** the questions in the spaces provided.

Information

- The maximum mark for this paper is 85.
- Mark allocations are shown in brackets.

| For Examiner's Use | |
|---------------------|------|
| Number | Mark |
| 1-5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |
| 11 | |
| 12 | |
| 13 | |
| 14 | |
| 15 | |
| 16 | |
| TOTAL | |
| Examiner's Initials | |

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

For Questions 1 to 5, write the letter or letters for the answers in the spaces given.

- 1 Which **two** of the following could be used to prevent unauthorised access to information stored on a computer system?

- A virus check
- B password
- C lock on the computer room
- D data logging
- E data capture forms

Answer (2 marks)

- 2 Which **one** of the following would you use to help you look for suppliers of CDs on the Internet?

- A a word processor
- B a search engine
- C an e-mail
- D a fax

Answer (1 mark)

- 3 Which **two** of the following are important features of ROM?

- A Its contents will be lost when the computer is switched off.
- B Its contents will **not** be lost when the computer is switched off.
- C It can be read from and written to.
- D It can be read from but **not** written to.
- E It can be written to but **not** read from.

Answer (2 marks)

- 4 Which **one** of the following software packages would be the **best** for a school to use to create its own information pages that can be accessed on the Internet?

- A database management
- B modelling
- C web design
- D drawing

Answer (1 mark)

- 5 What is the process of gaining illegal access to a computer system called?

- A data logging
- B hacking
- C copyright
- D virus detection

Answer (1 mark)

6

- | | |
|--------------------|-----------|
| CD-ROM | Light pen |
| DVD ROM | Monitor |
| DVD RAM | Mouse |
| Graphics digitiser | Plotter |
| Hard disk | ROM |
| Keyboard | Sensor |
| Laser printer | Speaker |

(a) From the list given above, choose **four** of the devices that are *input peripherals*.

Input peripheral 1

Input peripheral 2

Input peripheral 3

Input peripheral 4

(4 marks)

(b) From the list given above, choose **three** of the devices that are *output peripherals*.

Output peripheral 1

Output peripheral 2

Output peripheral 3

(3 marks)

(c) From the list given above, choose **two** that are *storage media*.

Storage media 1

Storage media 2

(2 marks)

9

TURN OVER FOR THE NEXT QUESTION

Turn over ▶

7 A video shop used a DTP (Desk Top Publishing) package to change **Flyer A** into **Flyer B**.

Flyer A

Vic's Videos

Special Offers

Hire two videos and get a third video free.


Pay for a one-night hire and keep the video for 2 nights.

Hire three videos and get a large drink and large popcorn free.

Don't delay
Hire today

Flyer B

Vic's Videos

Special Offers 

- Hire two videos and get a third video free.
- Pay for a one-night hire and keep the video for 2 nights.
- Hire three videos and get a large drink and large popcorn free.

**Don't delay
Hire today**

(a) Give **five** changes that have been made to **Flyer A**.

- Change 1
- Change 2
- Change 3
- Change 4
- Change 5

(5 marks)

(b) Give **two other** changes that could have been made to improve the presentation of **Flyer A** using a DTP package.

- Change 1
- Change 2

(2 marks)

- 8** A gym and health centre is about to open in early autumn. The membership secretary needs a data capture form for new members to complete. The details from the data capture form will be put into their members database.

In the space below design **part** of the data capture form for new members. Care should be taken to include **five** suitable fields and enough space to fill in their details.

(5 marks)

TURN OVER FOR THE NEXT QUESTION

Turn over ▶

- 9 From the list given below, choose which term best matches the definition in the left-hand column of the table which follows. Write your answers in the spaces provided in the right-hand column.

bar codes
calibration
data capture forms
data logging
feedback

logging interval
magnetic strips
MICR
OCR
OMR

period of logging
questionnaires
sensor
tabulation

| Definition | Term which best matches the definition |
|---|--|
| The collecting and storage of data at regular, fixed intervals over a period of time. | |
| A method of data input used in banking to read magnetised ink on cheques. | |
| Used to store data such as the account number and expiry date on credit and bank cards. | |
| The continuous checking of data from sensors to control the output of a computer system. | |
| A method of inputting data in which reflected light is used to detect character patterns. | |
| A method of matching readings from a sensor to an accepted scale in known units. | |

(6 marks)

6

10 The 1998 Data Protection Act was introduced to help to protect people's right to privacy. From the list below, **write the letters** for the answers in the spaces given.

- A:** Data is obtained for specified and lawful purposes.
- B:** Data is accurate and up-to-date.
- C:** Data where national security is concerned.
- D:** Data is never to be given to anyone.
- E:** Data must not be more than six months old.
- F:** Data held on individuals must be sent to them on request.
- G:** Data can be prevented from being used for direct marketing.
- H:** Data that individuals want removed from their record must be removed immediately.
- I:** Data is not to be transferred outside the UK.
- J:** Data is to be kept secure against loss, damage or unauthorised processing.
- K:** Data used for health, education and social work.

(a) Give **three** responsibilities placed on data users by the 1998 Data Protection Act.

Responsibility 1

Responsibility 2

Responsibility 3

(3 marks)

(b) Give **two** rights the 1998 Data Protection Act gives to data subjects.

Right 1

Right 2

(2 marks)

(c) Give **two** exemptions from the 1998 Data Protection Act.

Exemption 1

Exemption 2

(2 marks)

7

TURN OVER FOR THE NEXT QUESTION

Turn over ▶

- 11 Mrs Brown uses a spreadsheet to help her calculate the cost of decorating and buying some new furniture for her son's bedroom. Her first attempt is shown below.

| | A | B | C | D | E | F | G |
|----|------------------------------|------------------|----------------------|----------------------------|---|---|---|
| 1 | Item to be purchased | Unit cost | Number needed | Total cost per item | | | |
| 2 | | | | | | | |
| 3 | Wallpaper (per roll) | £6.95 | 6 | £41.70 | | | |
| 4 | Wallpaper paste (per packet) | £2.99 | 2 | £5.98 | | | |
| 5 | Paint (per tin) - red | £4.49 | 2 | £8.98 | | | |
| 6 | Paint (per tin) - white | £3.99 | 3 | £11.97 | | | |
| 7 | Paintbrush | £1.49 | 3 | £4.47 | | | |
| 8 | Carpet (per sq metre) | £12.99 | 9 | £116.91 | | | |
| 9 | Lampshade | £8.50 | 2 | £17.00 | | | |
| 10 | Quilt | £22.99 | 2 | £45.98 | | | |
| 11 | Quilt cover | £17.25 | 3 | £51.75 | | | |
| 12 | Curtains (pair) | £34.45 | 2 | £68.90 | | | |
| 13 | Wardrobe | £99.99 | 2 | £199.98 | | | |
| 14 | Bed | £199.99 | 1 | £199.99 | | | |
| 15 | Computer desk | £199.00 | 1 | £199.00 | | | |
| 16 | Chest of drawers | £33.75 | 3 | £101.25 | | | |
| 17 | | | | | | | |
| 18 | Total cost for the bedroom | | | £1,073.86 | | | |

- (a) Which cell contains the unit cost of a paintbrush?

| | Tick one box only |
|----|--------------------------|
| A6 | |
| B6 | |
| A7 | |
| B7 | |

(1 mark)

- (b) All the cells in this spreadsheet contain either text, number or formulae. State which **one** of these is contained in the following cells:

(i) B14

(ii) A14

(2 marks)

- (c) State the formula which would be contained in each of the following cells:

(i) D3

(ii) D18

(2 marks)

- (d) Mrs Brown has only £550 to spend on the bedroom. Explain clearly how she could use the spreadsheet to investigate “what if” situations to help her keep within her budget.

.....

.....

.....

.....

(2 marks)

7

TURN OVER FOR THE NEXT QUESTION

Turn over ▶

12 A school uses a database to store information on its pupils. Part of the database file for year 7 pupils is shown below.

| Pupil Number | Surname | Forename | Sex | Date of Birth | Tutor Group | Contact Telephone Number |
|--------------|---------|----------|-----|---------------|-------------|--------------------------|
| 7001 | Ahmed | Parvaiz | M | 06-09-90 | 7 TD | 343536 |
| 7002 | Amos | Linda | F | 12-12-90 | 7 BG | 353647 |
| 7004 | Brown | Lucy | F | 23-11-90 | 7 TD | 352427 |
| 7006 | Collins | Katie | F | 16-04-99 | 7 LK | 348876 |
| 7007 | Currie | John | M | 31-01-91 | 7 HJ | 343422 |
| 7010 | Dixon | David | M | 10-10-90 | 7 LK | 342121 |
| 7011 | Durham | Sarah | F | 17-08-91 | 7 OP | 356789 |
| 7015 | Ford | Jodi | F | 25-04-91 | 7 OP | 354678 |

(a) How many *records* are shown in this database file?

..... (1 mark)

(b) How many *fields* are shown in this database file?

..... (1 mark)

(c) (i) Name **one** field which has been coded.

..... (1 mark)

(ii) Give **two** advantages of coding data.

Advantage 1.....

.....

Advantage 2.....

.....

(2 marks)

(d) (i) Which field 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)

(e) The database contains an error in one of the Date of Birth entries.

(i) State clearly what the error is.

.....
(1 mark)

(ii) Explain how you know this is an error.

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

(iii) Explain how data validation could have been used to prevent this error.

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

13 More people are making increased use of computers both at work and at home. This has made people more aware of computer-related health issues.

(a) Outline **two** health problems that can occur as a result of people using a computer for long periods of time.

Problem 1
.....

Problem 2
.....
(2 marks)

(b) Describe what steps can be taken to help overcome **one** of the problems you have outlined in (a) above.

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

11

4

TURN OVER FOR THE NEXT QUESTION

Turn over ▶

14 From the list below, choose the **most** suitable type of application software to use for each task described.

- | | |
|---------------------|-----------------|
| Charts | Drawing |
| Communications | Mail-merging |
| Database | Spreadsheet |
| Data logging | Web design |
| Desk top publishing | Word processing |

| Task | Application Software |
|--|-----------------------------|
| (a) sending an e-mail | |
| (b) sending a personalised letter to all members of a club | |
| (c) writing a book | |
| (d) calculating the monthly cost of running a car | |
| (e) automatically collecting temperatures at a weather station | |
| (f) storing a video club's membership records | |
| (g) organising the layout of a school newspaper | |

(7 marks)



15 A travel agent is going to design a new interactive web site where the customers can read about and book holidays. The way in which a customer interacts with computer software is increasingly important. One possible way the customer could interact is with a command driven interface.

(a) Give **two other** types of user interface the travel agent could use.

User interface 1

User interface 2

(2 marks)

(b) Which **three** of the following are important factors to be considered when the travel agent is designing the new user interface?

| | Tick three boxes only |
|-----------------------------|------------------------------|
| Lots of holidays in Spain | |
| A consistency of layout | |
| A consistency of text style | |
| The use of a spreadsheet | |
| The use of sound | |
| The cost of installation | |

(3 marks)

(c) Two other features that the travel agent will use on the new web site are *hyperlinks* and *hot spots*. Explain these terms:

(i) Hyperlink

.....

(ii) Hot spot

.....

(2 marks)



TURN OVER FOR THE NEXT QUESTION

Turn over ►

16 (a) Explain what is meant by the term *operating system*.

.....

(2 marks)

(b) Operating systems are

| | |
|----------|--------------------------|
| | Tick one box only |
| Hardware | |
| Software | |

(1 mark)

(c) Which **three** of the following are features of operating systems?

| | |
|---|------------------------------|
| | Tick three boxes only |
| Manages system resources including memory | |
| Manages the allocation of CPU time | |
| Manages the spell-checker in a word processor | |
| Manages the accounts | |
| Manages system security | |
| Manages the buying of new computers | |

(3 marks)

(d) Name **two** different types of operating system.

Operating System 1

Operating System 2

(2 marks)

END OF QUESTIONS