

Oxford Cambridge and RSA Examinations
General Certificate of Secondary Education

INFORMATION AND COMMUNICATION TECHNOLOGY A
FOUNDATION TIER (2359F)
PAPER 3

1994

Specimen Paper 2003

Additional materials:
Candidates answer on the question paper.

TIME 1 hour

Candidate Name	Centre Number	Candidate Number									
	<table border="1" style="width: 100%; height: 40px;"><tr><td style="width: 20px; height: 30px;"></td><td style="width: 20px; height: 30px;"></td><td style="width: 20px; height: 30px;"></td><td style="width: 20px; height: 30px;"></td><td style="width: 20px; height: 30px;"></td></tr></table>						<table border="1" style="width: 100%; height: 40px;"><tr><td style="width: 20px; height: 30px;"></td><td style="width: 20px; height: 30px;"></td><td style="width: 20px; height: 30px;"></td><td style="width: 20px; height: 30px;"></td></tr></table>				

INSTRUCTIONS TO CANDIDATES

- Write your name in the space above.
- Write your Centre number and Candidate number in the boxes above.
- Answer all the questions.
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
- Read each question carefully and make sure you know what you have to do before starting your answer.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is 60.
- You will be awarded marks for the quality of written communication where an answer requires a piece of extended writing.

5 Tick **one** benefit of using robots to make cars.

Robots never break down.	
Robots do not need paying.	
Robots can think for themselves.	
Robots can replace all jobs done by humans.	

[1]

6 Office staff now use computers for word processing.

(a) Text can be formatted when using a word processor. Give **two** examples of formatting.

1 _____

2 _____

[2]

(b) Give **two** ways in which office staff have been affected by the introduction of word processors.

Way 1 _____

Way 2 _____

[2]

7 (a) Give **two** reasons why CD-ROMs are used to store encyclopædias.

Reason 1 _____

Reason 2 _____

[2]

(b) One type of information stored on a CD-ROM is text. Give **one** other type of information stored on a CD-ROM.

[1]

8 Give **two** benefits of using a local area network.

Benefit 1 _____

Benefit 2 _____

[2]

9 Give **one** difference between a Local Area Network (LAN) and a Wide Area Network (WAN)

[1]

10 Give **two** advantages of using a windows environment compared with a command line environment.

Advantage 1 _____

Advantage 2 _____

[2]

- 11 Instructions need to be written to control a set of traffic lights at a road junction.
- (a) Give **one** method you would use to collect data about the traffic flow at the junction.
- _____
- [1]
- (b) State **one** method used to design the set of instructions to control the lights.
- _____
- [1]
- (c) The set of instructions has to be tested. Give **one** method of testing the instructions.
- _____
- [1]
- 12 (a) Describe **three** ways the Data Protection Act tries to protect individuals from the misuse of personal data held on computer.
- Way 1 _____
- _____
- Way 2 _____
- _____
- Way 3 _____
- _____
- [3]
- (b) Other than the misuse of personal data describe **two** ways in which information technology has created problems for the individual.
- Way 1 _____
- _____
- Way 2 _____
- _____
- [2]

13 A company uses mail order to sell its goods. A new computerised system is to be introduced.

(a) Describe **two** steps involved in implementing the system.

Step 1 _____

Step 2 _____

[2]

(b) Give **two** items of user documentation which would be supplied with the system.

Item 1 _____

Item 2 _____

[2]

(c) Describe **two** verification methods the company could use when data is entered into the computer.

Method 1 _____

Method 2 _____

[2]

(d) Give **two** reasons why the company uses codes to store data about the goods being sold.

Reason 1 _____

Reason 2 _____

[2]

(e) Describe **two** methods used to ensure that the data is not accidentally lost.

Method 1 _____

Method 2 _____

[2]

14 Tick **two** applications which use real-time processing.

Printing examination certificates.	
Calculating gas bills.	
Central heating system.	
Sending out reminders for overdue books.	
Automatic pilot on an aeroplane.	
Clearing cheques in a bank.	

[2]

15 A mail order electronics company uses a computerised stock control system in its warehouse.

(a) In order to find an item, a six-digit item code number has to be entered into the computer. Give **two** validation checks which could be used on this number.

Check 1 _____

Check 2 _____

[2]

(b) Give **one** reason it is not suitable to store the database on a CD-ROM?

[1]

16 A company has branches all over the world and uses electronic conferencing to communicate with its employees.

(a) Describe electronic conferencing.

[2]

(b) Give **two** benefits to the company and its employees of using electronic conferencing.

Benefit 1 _____

Benefit 2 _____

[2]

17 **(a)** One example of where an expert system is used is to help doctors diagnose illnesses Give **one** other example of an expert system.

[1]

(b) Describe how the expert system will be used.

[3]



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MARK SCHEME

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Answers

Where there is only one answer given this is the only answer available.

Where a candidate has to choose a number of answers from a given list there should be no more answers than that asked for in the question. If a candidate gives more answers than asked for then every answer over the specified number cancels out one of the correct answers - if there are any.

No trade names are to given credit unless accompanied by a description of what they do eg 'MS Word' would gain no credit but 'the word processor MS Word' would.

- 1 RAM 1
 CD-ROM 1
- 2 modem 1
 telephone 1
- 3 (a) data logging 1
 (b) a virus 1
 (c) email 1
- 4 Itemised receipts can be produced. 1
 The assistant does not have to key in the prices. 1
- 5 Robots do not need paying. 1
- 6 (a) Two from:
 Left justified
 Right justified
 Centralised
 Fully justified
 Left and right justified
 Text to fit pages/graphics
 Number of columns
 Any other suitable answer or words which describe the above. 2
- (b) Two from:
 Transfer of data from the old system
 Re-organisation of the office
 Upheaval during installation
 The employees will need to be retrained.
 Employees may lose their jobs.
 Health problems (only one).
 Any other suitable answer. 2

- 7** **(a)** Two from:
Portable - can be used on many different computers.
Compact data
Cheaper than hard discs.
Use of sound.
Easier to search for information.
Animation.
Video.
Any other suitable answer (nothing to do with speed). **2**
- (b)** One from:
graphics/pictures
animation/video
sound
music
Not figures/numbers **1**
- 8** Two from:
sharing data
only need a single printer
sharing programs **2**
- 9** One from:
A LAN is one site or room and
a WAN is over long distances (eg Internet) **1**
- 10** Two from:
Commands do not have to be remembered.
Less typing.
Less mistakes made due to typing errors.
Items can be dragged and dropped.
Multi-tasking is possible.
Choices can be made quicker.
Any other suitable answer. **2**

- 11 (a)** One from:
 Direct observation.
 Pressure sensor.
 Camera (direct observation).
 Light sensor (0).
 Radar (0).
 Sonar (0).
 Sensors in the road.
 Tally chart.
 Traffic survey.
 Survey (0).
 Any suitable answer. 1
- (b)** One from:
 Block diagrams.
 Structure charts.
 Flowcharts.
 Algorithms.
 Description in words.
 Any other suitable answer. 1
- (c)** One from:
 Build a computer model.
 Different types of test data.
 Extreme data.
 Abnormal data.
 Build a real model.
 Write a program to simulate the lights.
 Any other suitable answer. 1
- 12 (a)** Three from
 Data users need to register
 Information shall be obtained fairly
 Information shall be obtained lawfully
 Data held only for one or more specified and lawful purpose
 Data shall not be used for anything other than that purpose
 Data shall not be disclosed for anything other than that purpose
 Data held for any purpose shall be adequate in relation to that purpose
 Data held for any purpose shall be relevant in relation to that purpose
 Data held for any purpose shall be not excessive in relation to that purpose
 Data shall be accurate
 Data shall be kept up to date
 Data shall not be kept for longer than necessary
 An individual shall be entitled
 -to be informed by any data user whether he holds personal
 data of which that individual is the subject
 -to have access to any such data held by a data user
 -where appropriate to have such data corrected or erased
 Nothing to do with security 3

- (b)** Description of two from:
 Unsolicited mail (junk mail).
 Unauthorised access to private data.
 Security cameras.
 Faulty bank machines.
 Loss of jobs.
 People need to learn IT skills.
 Incorrect data.
 Inaccurate data.
 Health reason (one only)
 Hacking (0)
 Any other suitable answer. 2
- 13 (a)** Description of two from:
 Coding data structures
 Design of test data
 Training staff
 Testing the system
 Parallel running
 Phased introduction
 Direct change over
 Transferring data to new system
 Any other suitable step. 2
- (b)** Two from:
 Purpose of the system
 Hardware requirements
 Software requirements
 How to use the system
 Input formats
 Output formats
 Sample runs
 Error messages
 Limitations of the system
 User guide
 Troubleshooting guide
 (Not trivial answers like - name, author, date etc) 2
- (c)** Type the data using two different operators and compare the results. 1
 Visual check on the typed data. 1
- (d)** Two from:
 Save storage space
 Save time when entering data
 Save space on documents when printing large lists
 Fewer data entry errors
 Easier validation
 Faster processing
 Any other suitable reason. 2

- (e) Description of two from:
 Backup the regularly
 Keep copies of the data on a different site
 Keep the data in a fireproof safe
 Lock the room where the data is kept
 Autosaving
 Save under different file names
 Undo
 Recycle bin
 File attributes(0) Hard copy(0) Printing(0)
 Any other suitable method. 2
- 14 Central heating system. 1
 Automatic pilot on an aeroplane. 1
- 15 (a) Two from:
 Range check.
 Existency check.
 Check digit.
 Check if all the characters are digits.
 Check if there are less than six characters entered.
 Any other suitable step. 2
- (b) One from:
 No new items could be added.
 No CD-ROM drive (give no credit). 1
- 16 (a) Employees are connected to an on-line system at the same time.
 Each member contributes to the conversation by typing their text
 which appears on everyone else's screen.
 Real time images of the people in the conference may appear on the
 screen like a TV picture.
 Hardware - video/microphone/speaker (1 mark for 1 item) 2
- (b) Two from:
 Companies do not have to transport their employees to a common
 meeting place.
 Instant communication with all employees.
 Each employee can contribute equally to the conference.
 Cost of travel eliminated.
 Time saved because of travelling.
 Can work from home.
 Any other suitable answer. 2

- 17 (a)** One example of an expert system other than medical e.g. car fault diagnosis, prospecting, tax, careers, chess game. 1
- (b)** Explanation should include at least 3 of the following:
 Enter problem into the program
 Respond to questions asked by the program.
 Try out suggestions made by the program.
 Tell the program the results of the trials.
 Branch to different routings based on previous results.
 Any other suitable step. 3
- 18** Two from:
 No human intervention so no chance of forgetting to record the weather.
 Can collect weather over very long periods.
 Will take the readings more accurately than a human.
 Can be programmed to display data automatically at regular intervals.
 Data can be automatically stored and used in other programs.
 Safety considerations.
 Any other suitable answer. 2
- 19** One from:
 Id/account number of card holder.
 Issue number.
 Date of issue of the card.
 Date the card expires.
 Sort code. 1
- 20** Points should be made from:
 Research the current situation.
 Analyse the output required.
 Work out what information the new system needs.
 Analyse the processing required.
 Analyse the constraints of the system - cost, time.
 Breakdown the task.
 Estimate the resources required.
 A diagram of the solution (block diagram or system flowchart).
 Design appropriate forms for data capture.
 Design the internal organisation of data.
 Select appropriate hardware.
 Select appropriate software.
 Staff opinions (not students).
 Observation of current system.
 Looking at current documentation.
 Questionnaires.
 Looking at a corresponding system at another school.
 Screen displays. 4

TOTAL MARK 60

Assessment Grid

Question Number	AO1	AO2	AO3	AO5	AO4	Grade
1	3.1 [2]					G
2	3.4 [2]					G
3	3.1 [1]		3.2/3.4 [2]			G
4					3.1 [2]	G
5					3.1 [1]	G
6a	2.1 [2]					F
6b					3.1 [2]	F
7a	3.1 [2]					F
7b	3.1 [1]					F
8					3.4 [2]	F
9					3.4 [1]	F
10	3.1 [2]					E
11a		4.1 [1]				E
11b		4.2 [1]				E
11c		4.3 [1]				E
12a				3.2 [3]		E
12b				3.2 [2]		E
13a		4.3 [2]				D
13b		4.4 [2]				D
13c			3.3 [2]			D
13d			4.2 [2]			D
13e			3.1 [2]			D
14	3.3 [2]					D
15a				3.3 [2]		D
15b	3.1 [1]					D
16a					3.4 [2]	C
16b					3.4 [2]	C
17a					3.1 [1]	C
17b		3.3 [3]				C
18			3.3 [2]			C
19	3.1 [1]					C
20		4.1/4.2 [4]				C