

**GCSE IN APPLIED INFORMATION AND COMMUNICATION
TECHNOLOGY: DOUBLE AWARD**

1494

SPECIMEN ASSESSMENT MATERIALS

These specimen assessment materials are designed to accompany the OCR GCSE in Applied Information and Communication Technology (Double Award) Specification for teaching from September 2002.

Centres are permitted to copy material from this booklet for their own internal use.

OCR has prepared specifications to incorporate the range of features required by GCSEs (Double Awards) and subject criteria. The specimen assessment material accompanying the new specification is provided to give Centres a reasonable idea of the general shape and character of the planned question papers in advance of the first operational examination.

QAN 100/1971/6

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Question Paper for Assessment Unit 1: ICT knowledge and understanding
Mark Scheme

Oxford Cambridge and RSA Examinations
General Certificate of Secondary Education

**APPLIED INFORMATION AND COMMUNICATION
TECHNOLOGY: DOUBLE AWARD**
ASSESSMENT UNIT 1: ICT knowledge and understanding

1494

Specimen Paper

Additional materials: None.

TIME 1 hour 30 minutes

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

INSTRUCTIONS TO CANDIDATES

- Write your name, Centre number and candidate number in the spaces above.
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
- Answer **all** the questions.
- 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 **100**.

Question number	For examiner's use only
1	
2	
3	
4	
5	
6	
7	
8	
TOTAL	

1 A company decides to use a database of existing customers so that they can write to them individually when new products are released.

List **five** items of information that the company would want to include on the database.

- (a) _____ [1]
- (b) _____ [1]
- (c) _____ [1]
- (d) _____ [1]
- (e) _____ [1]

2 The company is very worried about the security of its data. The consultant has told the company that data loss concerns can be classified under **three** headings:

- physical threat;
- viruses;
- data loss.

(a) State **four** physical threats to the security of a company's data.

- (i) _____ [1]
- (ii) _____ [1]
- (iii) _____ [1]
- (iv) _____ [1]

(b) Briefly describe what a computer virus is.

_____ [2]

(c) Suggest steps that the company could take to prevent viruses entering its computer systems.

_____ [2]

(d) State **one** common cause of data loss.

_____ [2]

- 2 (e) The consultant has recommended **three** security measures:
- the use of passwords;
 - encryption of confidential data;
 - regular backups.

Briefly explain what each security measure involves.

(i) the use of passwords: _____
_____ [2]

(ii) encryption of confidential data: _____
_____ [2]

(iii) regular backups: _____
_____ [2]

- (f) List the **four** main types of backing storage that a manufacturing company could use.

State the main use of each.

(i) Type of backing store: _____ [1]
main use: _____ [1]

(ii) Type of backing store: _____ [1]
main use: _____ [1]

(iii) Type of backing store: _____ [1]
main use: _____ [1]

(iv) Type of backing store: _____ [1]
main use: _____ [1]

3 Organisations use a variety of documents to communicate with different audiences and pass on different types of information.

Complete the chart below to give:

- a brief description of **one** type of document produced by an organisation for **each** of the business functions given;
- **one** example of a type of ICT that could be used for **each** function.

Business Function	Description of a type of document	Type of ICT that could be used
Sales		
Purchasing		
Finance		
Production		

[12]

- 4 A manufacturer of hair dryers is considering the use of new technology to manufacture and sell a new product range of hair dryers.

The manufacturer has asked a consultant to investigate the costs involved in automating production of the new hair dryer.

The consultant has produced the following chart:

Type of technology	Cost	Benefit to company	Product improvements	Labour implications
Fully automated system	Very high, especially at set up stage and retooling	High benefit if very large production runs	Less human error; high product success rate	Need for significant reduction in work force and retraining of staff remaining
Semi automated system	High, especially at set up stage and retooling	High benefit for medium production runs	Good success rate	Some reduction in workforce but significant retraining implications
Robotic assembly	Medium; some breakdowns	Some cost savings	Satisfactory success rate	Retraining of some staff necessary
Computer quality control system	Low relative to other options	More effective quality control procedures	More reliable product at low cost	Some retraining and recruitment of staff for quality control

- 4 (c) Complete the following sentences by stating a type of software that would be used by the hair dryer manufacturer.
- (i) Letters to customers would be created using:
 _____ software. [1]
- (ii) New hair dryers would be designed using:
 _____ software. [1]
- (iii) The machine to manufacture the hair dryers would be controlled by:
 _____ software. [1]
- (iv) Digital pictures of new products would be manipulated using
 _____ software. [1]
- (v) Customer details would be held on:
 _____ software. [1]
- (vi) The company website would be created using:
 _____ software. [1]

5 The hair dryer company uses information communication technology to:

- produce catalogues of their hair dryers;
- control stock;
- calculate all financial data;
- design new products.

The company's computer systems consist of screens, computers and keyboards.

(a) List **one** other piece of equipment needed for **each** of the functions listed.

- (i) To produce catalogues: _____ [1]
- (ii) To control stock: _____ [1]
- (iii) To calculate financial data: _____ [1]
- (iv) To design products: _____ [1]

5 (b) Computer systems have inputs, storage, processing, outputs and feedback.

Draw a simple block diagram to represent these.

You should indicate the direction of data flow.

[6]

(c) Most computers include a number of auxiliary devices.

In the table below tick the box or boxes that give the *best* description of each of the devices listed.

	Floppy Disk	Zip Disk	CD-ROM	Dot matrix Printer	Hard Disk
Cheapest storage device					
Not portable					
Can be written to only once					
Holds a large amount of data					
Will print on multi-part stationery					
Retrieves data fast					
Is like a floppy disk but holds more data					

[9]

- 6 The company sales department is exploring alternative ways of showing new hair dryers in the sales magazine and CD-based catalogue.

Compare the *advantages* and *disadvantages* of each of the following alternative ways of capturing pictures for use by the company:

- Scanner;
- Clip-art;
- Digital camera;
- Drawing the pictures themselves using a drawing package.

You should aim to make **three** points about **each** way.

(a) Scanner:

- (i) _____
- (ii) _____
- (iii) _____ [2]

(b) Clip-Art:

- (i) _____
- (ii) _____
- (iii) _____ [2]

(c) Digital Camera:

- (i) _____
- (ii) _____
- (iii) _____ [2]

(d) Drawing package:

- (i) _____
- (ii) _____
- (iii) _____ [2]

7 (a) Describe **three** benefits to the hair dryer *manufacturer* of changing from a paper-based to a CD-ROM based product catalogue.

(i) _____
_____ [2]

(ii) _____
_____ [2]

(iii) _____
_____ [2]

(b) Give **three** benefits to the hair dryer *purchaser* (customer) of the change from a paper-based to a CD-ROM based catalogue.

(i) _____ [1]

(ii) _____ [1]

(iii) _____ [1]

(c) Describe **three** main benefits to the manufacturer *and* the customer of introducing an on-line catalogue rather than a CD-ROM based catalogue.

(i) _____ [1]

(ii) _____ [1]

(iii) _____ [1]

8 The hair dryer manufacturer has decided to produce a special model for elderly people and people with disabilities.

Market research suggests that the following points need to be considered for this target customer:

- Hair dryer must not get too hot.
- Hair dryer must not run for more than 15 minutes.

Suggest **one** ICT solution for **each** of these points.

(a) Not too hot: _____ [1]

(b) Not over 15 minutes: _____ [1]

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MARK SCHEME

Advice to examiners on marking scripts

- 1 Please ensure that you use the *final* version of the marking scheme.
You are advised to destroy all draft versions.
- 2 Please mark all post standardisation scripts in red ink. A tick should be used for each answer judged worthy of a mark. The tick should be placed at the point in the answer where the mark has been awarded. The number of ticks should be the same as the number of marks awarded. If two (or more) responses are required for one mark, use only one tick. Half marks should never be used.
- 3 No comments should be written on scripts.
Remember that scripts may be returned to Centres.
- 4 The marks awarded for each part question should be indicated in the margin provided on the right hand side of the page. The mark total for each question should be ringed at the end of the question, on the right hand side. These totals should be added up to give the final total on the front of the paper.
- 5 Correct answers to calculations should gain full credit even if no working is shown unless otherwise indicated in the mark scheme. (An instruction on the paper to 'Show your working' is to help candidates who may then gain partial credit even if their final answer is not correct.)
- 6 Strike through all blank spaces and/or pages in order to give a clear indication that the whole of the script has been considered.
- 7 An element of professional judgement is required in the marking of any written paper and candidates may not use the exact words that appear in the mark scheme. If the essence is correct *and* answers the question, contact your Team Leader/Principal Examiner for guidance.

Question	Answer	Mark	Grade
1	<p>1 mark for each relevant answer. <i>Example answers:</i> A reference or account number for each customer; name; address; previous purchases; when purchased</p>	5x1	5D
2(a)	<p>1 mark for each relevant answer. <i>Example answers:</i> Theft of computer or system or peripherals; a fire or flood; major changes in humidity or temperature; magnetic storms</p>	4x1	4B
2(b)	<p>1 mark for simple answer, 2 for description. <i>Example answer:</i> A virus is a computer program that automatically copies itself so that it can infect data and programs without the user's knowledge. It can then damage the program or files.</p>	2	2E
2(c)	<p>1 mark for simple answer, 2 for description. <i>Example answer:</i> Use virus software; don't let employees bring in their own data on disks.</p>	2	2E
2(d)	<p>1 mark for simple answer, 2 for description. <i>Example answer:</i> Accidental damage when inexperienced operators are using computer systems.</p>	2	2E
2(e)	<p>1 mark for simple answers, 2 for descriptions. <i>Example answers:</i> Passwords can be used to protect data against damage or theft. You can restrict users to a certain level of access by issuing them with an ID/password. Files containing sensitive data can be coded by a process called encryption. You need the code to decipher the files. By regularly backing up data, it is possible if the data becomes corrupted to reinstate the original files. Backing up means taking a copy of the data and keeping it somewhere apart from the computer.</p>	3x2	3B 3A
2(f)	<p>hard disks: used to store the operating system and application software floppy disks: used to hold data files and backups CD-ROMs: used for their catalogue and software magnetic tape: for backups of company files</p>	2x1 2x1 2x1 2x1	2B 6A
3	<p>1 mark for each relevant answer in first column. 2 in second if answer relates to first column, 1 mark if not. <i>See Chart A at end.</i></p>	4+8	6A 6C

Question	Answer	Mark	Grade
4(a)	Marks will be awarded for any relevant answer that uses data from the chart. The mark scheme will be banded to show a range of marks awarded for different types of answer. At the higher levels, candidates must talk about the scale of production and effect on the workforce. They should also refer to reliability and the importance of high reliability if very large production runs are to be achieved. In banding the mark scheme, the four essential elements of cost, benefit to company, product improvement and labour implications will be weighted equally.	8	2A 1B 1C 1D 1E 2F
4(b)	<i>One mark for each correct answer:</i> <i>Sample answers:</i> Software designers; hardware engineers; service engineers; website designers; programmers for robots; training jobs.	4x1	2C 2D
4(c)	word processing package CAD package CAM package Graphics/image manipulation/photo editing package database web design package	6x1	6F
5(a)	<i>One from:</i> laser printer, digital camera <i>One from:</i> bar code reader, modem <i>One from:</i> mouse, specialist key board <i>One from:</i> plotter, scanner	4x1	2E 2F
5(b)	<i>See Diagram C at end:</i> One mark each correct block plus one for arrows.	6	4F 2A
5(c)	1 mark for each relevant answer. <i>See Chart B at end.</i>	9x1	9F
6	<i>1 mark for simple answers, 2 for for advantages and disadvantages.</i> <i>Example answers:</i>		1A 1C 1D 5F
6(a)	Scanners are fairly quick and easy to use, and achieve high quality copies, but the company would need to take a normal photograph first. High resolution scanned pictures also need a lot of computer memory.	2	
6(b)	Whilst clip-art is free, easily available and quick, the company is unlikely to find a piece of clip-art that will exactly match the new product.	2	
6(c)	The company can take pictures of the new product in digital format. The disadvantage is the cost of the camera and the transfer of images from camera to computer. You also need to be a good photographer.	2	

Question	Answer	Mark	Grade
6(d)	Drawing the pictures themselves is the easiest and cheapest method as they probably already have drawing software installed. However you have to be skilled at drawing and it can take a long time to achieve a true representation of the product.	2	
7(a)	<i>Banded mark scheme on responses. One mark each point plus differentiation on discussion.</i> <i>Example answer:</i> Does not waste paper; does not need a printer so can be done in-house; much cheaper to post; can hold much more data; can be interactive	3x2	1D 1E 4F
7(b)	<i>One mark each point.</i> <i>Example answer:</i> Does not take up much room; easier to search through; can be interactive	3x1	3F
7(c)	<i>One mark each point.</i> <i>Example answer:</i> Goods can be ordered quickly on line; catalogue can be regularly updated, including prices; can show availability of goods; no postage cost; anyone can access it; can be right up to date	3x1	3F
8	Heat sensor Electronic timer	1 1	2F

Total mark available: 100

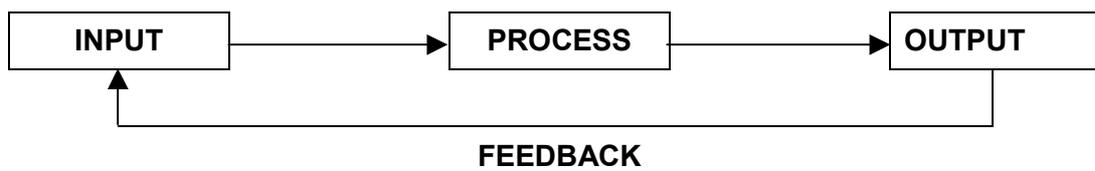
Chart A

Business Function	Description of a type of document	Type of ICT that could be used
Sales	Any document used to process transactions involving sale of goods and services provided by the organisation	Database of customers; spreadsheet for invoicing; web site for sales; desk top publishing for promotions and advertising
Purchasing	Any document used to process transactions involving the purchase of goods or services required by the organisation	Spreadsheet for purchases; internet for supplier information; word processing for orders and letters
Finance	Any document used to manage the flow of money in and out of the organisation	Modelling software; spreadsheets; direct links to bank payroll software
Operations	Any document used to carry out the main business of the organisation, e.g. components, products or services	CAD/CAM; production software, e.g. robotics

Chart B

	Floppy Disk	Zip Disk	CD-ROM	Dot matrix Printer	Hard Disk
Cheapest storage device	✓				
Not portable					✓
Can be written to only once			✓		
Holds a large amount of data		✓	✓		✓
Will print on multi-part stationery				✓	
Retrieves data fast					✓
Is like a floppy disk but holds more data		✓			

Diagram C:



Assessment Grid

Question	AO1	AO2	AO3	AO4
1			5	
2a			4	
2b	2			
2c	2			
2d	2			
2e			6	
2f			8	
3			12	
4a		8		
4b				4
4c			6	
5a	4			
5b	6			
5c			9	
6a		2		
6b		2		
6c		2		
6d		2		
7a			6	
7b	3			
7c				3
8a				1
8b				1
Total	19	16	56	9

