

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**  
**General Certificate of Secondary Education**

**INFORMATION AND  
 COMMUNICATION TECHNOLOGY**



ICT B (Higher Tier)

**2380/02**

Friday **20 JANUARY 2006**

Afternoon

1 hour 30 minutes

Additional materials:

Candidates answer on the question paper.

Flowchart stencil

Candidates pre-prepared materials

Candidate  
Name

Centre  
Number

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Candidate  
Number

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**TIME** 1 hour 30 minutes

**INSTRUCTIONS TO CANDIDATES**

- Write your name, Centre number and candidate number in the spaces at the top of this page.
- Answer **all** questions.
- Write your answers in the spaces provided on the question paper.
- Do not write in the bar code. Do not write in the grey area between the pages.
- **DO NOT WRITE IN THE AREA OUTSIDE THE BOX BORDERING EACH PAGE. ANY WRITING IN THIS AREA WILL NOT BE MARKED.**

**FOR EXAMINER'S USE**

question number	marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
<b>TOTAL</b>	

**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 **80**.
- No marks will be awarded for using brand names of software packages or hardware.

- 1 State the type of software that you would recommend for each of the tasks shown in the table below.

You should state the type of software that would perform the task most efficiently.

Do not use brand names.

<b>Task</b>	<b>Type of software</b>
to send reminders to patients about appointments	
to develop a health centre website	
to record patient details	
to calculate the health centre's budget	
to produce a three-fold health campaign leaflet	
to redesign the waiting room	

2 The health centre's new computer system includes a database storing personal data about patients.

Some patients are worried about the use of this personal information.

(a) Describe **two** ways in which personal information held on patients could be misused.

Way 1 ..... [2]

Way 2 ..... [2]

(b) The Data Protection Act contains basic principles relating to personal data.

State **four** of the basic principles that the health centre must observe in connection with its patient database.

Principle 1 ..... [1]

Principle 2 ..... [1]

Principle 3 ..... [1]

Principle 4 ..... [1]

3 The spreadsheet below shows the results of a national survey of 1325 people who used the Internet to find health information.

Total answered questionnaire		1325
Age	Male	Female
11-20 years	20	19
21-30 years	205	150
31-40 years	320	150
41-50 years	250	150
51-60 years	55	6
<b>Usefulness of information</b>		
very useful		325
moderately useful		600
not useful		400

(a) From the information in the table,

(i) Which age group makes most use of the Internet?

..... [1]

(ii) Give **two** possible reasons for this.

.....  
 .....  
 .....  
 ..... [2]

(b) The information in the spreadsheet is to be presented to patients in a leaflet. How could all the information be presented graphically?

.....  
 .....  
 .....  
 ..... [2]

(c) Give **one** reason why the data in the spreadsheet could be misleading.

..... [1]



4 Part of the new database used by Wordsworth Health Centre is shown in the table below.

Patient number	Title	Surname	First Name	Address line 1	Address line 2	Post code	Blood type	Doctor
0436	Mr	Smith	John	17 Bridge Road	Wordsworth	WW4 8LP	A	Dr Khan
0766	Ms	Cushing	Sally	123 North Road	Wordsworth	WW1 2DP	AB	Dr Jones
0145	Miss	Williams	Noreen	19 Greenbank Road	Wordsworth	WW5 9EL	B	Dr Khan
0682	Mr	Smith	John	9 Acacia Avenue	Wordsworth	WW3 8RD	B	Dr Peterson
0337	Mrs	Lee	Kim	5 Elm Avenue	Wordsworth	WW7 3BR	A	Dr Jones

(a) Explain why the patient number is needed.

.....  
 ..... [2]

(b) Describe why accurate information is of vital importance in a health centre situation.

.....  
 ..... [2]

(c) State **one** field where an existence check (lookup) could be used to validate data entry.

.....  
 ..... [1]

(d) Explain the strengths and limitations of specific validation techniques to ensure the accuracy of data in the database.

.....  
 .....  
 .....  
 .....  
 .....  
 .....  
 ..... [6]

(e) Complete the table below to describe the different levels of access to patient data that would be needed by receptionists and GPs.

Staff	Level of access
Receptionists	
GPs	

[4]

5 Complete the chart to show **one** suitable input and **one** suitable output device for each task.

Task	Input device	Output device
The nurse wishes to capture data from the barcode on a medicine package to check its use by date.		
The nurse wishes to automatically log a patient's temperature over time and place the results in the patient's envelope.		
The practice manager wishes to automatically monitor the number of people entering and exiting the waiting room in order to do spot checks at any time of day.		
The practice manager wishes to install a security system to raise an alarm if the surgery is entered illegally at night.		

6 A brief description of the appointment booking procedure for Wordsworth Health Centre is described below:

- Patient contacts reception via telephone or email
- Receptionist asks patient when they can attend the surgery
- Receptionist checks on-screen for doctor availability
- If doctor not available receptionist asks patient for alternative dates, times or doctor
- If doctor is available receptionist adds new appointment to the database and informs patient.

Draw a system flowchart to show the various stages of booking an appointment.

7 The health centre has made limited use of computers in the past but today's busy general practice requires a more sophisticated system.

The practice needs a system that:

- prevents loss or corruption of data
- ensures security from unauthorised access
- reduces the possibility of inaccurate data.

Give **eight** ways that the health centre can effectively meet these requirements.

Way 1 ..... [1]

Way 2 ..... [1]

Way 3 ..... [1]

Way 4 ..... [1]

Way 5 ..... [1]

Way 6 ..... [1]

Way 7 ..... [1]

Way 8 ..... [1]

8 Wordsworth Health Centre is concerned about the health and safety of its staff, when using new technology.

For each risk shown in the chart below, give **two** safety measures that the health centre could introduce to reduce the risk.

Do not repeat your answers.

Risk	Safety Measures to reduce risk
Eye strain from staring at monitor	1
	2
Back strain	1
	2
Repetitive Strain Injury (RSI)	1
	2

[6]

- 9 The Wordsworth Health Centre has produced a new website and is looking for a service provider to host the site. The table below shows the initial analysis of five providers.

Using the data in the table and the needs of the health centre, recommend a provider.

Discuss the benefits and drawbacks of your chosen provider to Wordsworth Health Centre.

Provider	Speed	Storage size	Security	Ease of use	Cost	Technical help
A	10	10	2	9	5	7
B	4	4	9	5	4	2
C	8	8	6	8	8	8
D	2	10	5	5	5	5
E	5	6	6	4	8	9

10 = best

1 = worst

Provider chosen

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Reason .....

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