

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**

**Advanced Subsidiary GCE**

**INFORMATION AND COMMUNICATIONS TECHNOLOGY 2512**

Information Systems and Communications

Thursday **13 JANUARY 2005** Afternoon 1 hour 30 minutes

No additional materials are required.  
Candidates answer on the question paper.

Candidate Name	Centre Number	Candidate Number												
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td></tr> </table>							<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td></tr> </table>						

**TIME** 1 hour 30 minutes

**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 on the question paper.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- If you run out of space for an answer, continue on the lined pages at the back of this booklet.
- If you use these lined pages, you must write the question number next to 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 90, of which 4 marks are allocated to the assessment of the quality of written communication.
- You will be awarded marks for the quality of written communication where an answer requires a piece of extended writing.
- No marks will be awarded for using brand names of software packages or hardware.

<b>FOR EXAMINER'S USE</b>		
<b>1</b>		<b>4</b>
<b>2</b>		<b>4</b>
<b>3</b>		<b>2</b>
<b>4</b>		<b>8</b>
<b>5</b>		<b>11</b>
<b>6</b>		<b>15</b>
<b>7</b>		<b>5</b>
<b>8</b>		<b>7</b>
<b>9</b>		<b>4</b>
<b>10</b>		<b>9</b>
<b>11</b>		<b>2</b>
<b>12</b>		<b>4</b>
<b>13</b>		<b>4</b>
<b>14</b>		<b>7</b>
<b>WC</b>		<b>4</b>
<b>TOTAL</b>		<b>90</b>

**This question paper consists of 12 printed pages, 2 lined pages and 2 blank pages.**

Answer **all** the questions.

A removal company visits people who have sold their house to give them a quotation to move their furniture to their new house.

Every house requires a visit from the quotation manager who looks at the amount of furniture and boxes and decides on the size of van and number of workers required.

1 The quotation manager needs to use both information and knowledge when deciding on the size of van required.

(a) What is the difference between information and knowledge?

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.....[2]

(b) Identify **two** problems that could occur if the quotation manager ordered a van which was too small.

1 .....

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2 .....

.....[2]

2 After the visit to the house, the quotation is entered into the removal company's computer system. Some of the data being entered is coded.

Describe **two** benefits to the company of coding the data.

1 .....

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2 .....

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.....[4]

- 3 The computer system uses the data provided to create a quotation that is to be sent to the customer. The quotation contains both syntactic and semantic representations of information.

Using an example, describe what is meant by syntactic representations of information.

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.....[2]

- 4 The removal company employs people with physical disabilities in the office.

(a) Describe **two** input devices an employee who does not have use of their arms could use.

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2 .....

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.....[4]

(b) Describe **two** ways the user interface can be customised for partially sighted employees.

1 .....

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2 .....

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.....[4]

5 The current computer system uses a single user batch processing operating system.

(a) Describe **two** characteristics of a batch processing operating system.

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2 .....

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.....[4]

(b) Describe **two** characteristics of a single user operating system.

1 .....

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2 .....

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(c) The current computer system uses indexed sequential access to locate customer records.

Identify the stages required to find a customer called SMITH.

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.....[3]

6 The removal company has decided to create a database to store information on customers and quotations. The database will have two tables, CUSTOMER and QUOTATION.

(a) The QUOTATION table requires a foreign key.

What is meant by a foreign key?

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.....[2]

(b) Explain what is meant by referential integrity.

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.....[2]

(c) The removal company has decided that the database should have different levels of access for different employees.

Why are different levels of access required?

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.....[3]

(d) Before the database can be used it needs to be tested.

(i) Why is testing important?

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.....[2]

(ii) Why is it important to follow a test plan?

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.....[2]

(e) Describe **two** output devices the employees can use to retrieve information from the database.

1 .....

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2 .....

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.....[4]

7 The removal company wants to network ten computers together. One piece of additional equipment required is a switch.

(a) Explain the role of a switch in a Local Area Network (LAN).

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.....[3]

(b) The removal company needs to install protocols onto the computers. Explain why a protocol is necessary.

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.....[2]

8 The removal company will implement security procedures on its LAN.

(a) One of the security procedures is the introduction of passwords.

(i) Why are passwords required?

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.....[1]

(ii) Describe two ways of making a password remain effective in the long term.

1 .....  
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2 .....  
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.....[4]

(b) Identify **two** laws that the removal company would break if it was to purchase a single user licence for a piece of software and use it on all of its computers.

1 .....  
.....  
2 .....  
.....[2]



9 The removal company has produced a code of conduct relating to the use of the computer system.

Describe **two** advantages to the removal company of having its employees sign a code of conduct.

1 .....

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2 .....

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.....[4]

10 The removal company has expanded and set up offices in different towns. A Wide Area Network (WAN) is used to connect the computers together.

(a) Describe **two** characteristics of a WAN.

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2 .....

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(b) The offices use modems to connect to the WAN.

When a message is sent between two offices, the signal is converted from digital to analogue and back to digital.

Describe how analogue signals are converted to digital signals.

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(c) The removal company has purchased routers and upgraded all of its connections to the WAN to broadband.

Explain the role of a router.

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.....[2]

11 In order to comply with the Data Protection Act (1998) the removal company must register with the Information Commissioner.

Identify **two** principles of the Data Protection Act (1998).

1 .....

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2 .....

.....[2]

12 The removal company is concerned about the health of employees who use computers.

(a) Describe how an employee might get ulnar neuritis.

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.....[2]

(b) Describe how an employee might get eyesight defects.

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.....[2]

13 The removal company has a lot of information about customers stored in its database. The information in the database could be sold.

Identify **two** different organisations who might purchase the information and explain how each would use it.

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