

**ADVANCED SUBSIDIARY GCE
INFORMATION AND COMMUNICATION TECHNOLOGY**

2512

Information, Systems and Communications

FRIDAY 16 MAY 2008

Morning
Time: 1 hour 30 minutes

Candidates answer on the question paper

Additional materials: No additional materials are required



Candidate Forename

Candidate Surname

Centre Number

Candidate Number

INSTRUCTIONS TO CANDIDATES

- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use blue or black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided.

FOR EXAMINER'S USE		
1		6
2		9
3		4
4		9
5		10
6		10
7		7
8		12
9		8
10		11
QWC		4
TOTAL		90

INFORMATION FOR CANDIDATES

- The number of marks for each question 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 where an answer requires a piece of extended writing.
- No marks will be awarded for using brand names of software packages or hardware.

This document consists of **15** printed pages and **1** blank page.

2
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1 (a) Define the term data.

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

(b) Identify **two** different methods of representing information.

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

(c) Semantic and syntactic are two different aspects of information.

State what is meant by the terms:

(i) semantic

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

(ii) syntactic

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

2 A horse riding school keeps data on its customers.

(a) When a new customer registers, their details are entered into the computer system and then verified.

(i) Give **two** methods of verification.

Method 1

Method 2 [2]

(ii) Describe why verification cannot ensure that the data is correct.

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

(b) The horse riding school wants to produce a leaflet.

(i) Identify **two** costs that the riding school will incur when using the computer to produce the leaflet.

Cost 1

Cost 2 [2]

- (ii) The production of the leaflet follows the stages of input, process, output, storage and feedback.

Draw a diagram to illustrate how these stages are related.

[3]

- 3 A marketing company uses a reporting system to assist in its decision making process. The two reporting systems available are those which produce standard reports and those which rely on rules and probabilities to make deductions.

Explain why the company needs both types of reporting systems.

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..... [4]

4 An Internet Café has a number of computers that are not performing as fast as they used to.

(a) Identify **two** hardware upgrades that would improve the performance of the computers. For each upgrade, describe why it will improve performance.

Upgrade 1

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.....

.....

Upgrade 2

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..... [4]

(b) The Internet Café has a number of physically disabled customers.

Identify **two** input devices suitable for computer users who do not have the use of their arms.

Device 1

.....

Device 2

..... [2]

(c) The Internet Café needs to back-up and archive some of its data.

(i) What is the difference between a back-up and an archive of data?

.....

.....

.....

..... [2]

(ii) Why is it necessary to back-up data?

.....

..... [1]

5 (a) Two different types of operating system are real-time and distributed processing.

(i) Identify characteristics of a real-time operating system.

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

(ii) Identify characteristics of a distributed processing operating system.

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..... [2]

(b) Two different types of user interfaces are natural language and menus.

(i) Describe a natural language user interface.

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..... [2]

(ii) Describe a menu user interface.

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..... [2]

(c) System software includes a range of utilities.

Identify **two** utilities that could be included in system software.

Utility 1

Utility 2

..... [2]

6 A hairdresser currently has a manual system for keeping records of customers and bookings. He is looking to introduce a computerised system.

(a) For the following set of data, give an appropriate data type.

Field Name	Data Type
First name	
New customer?	
Telephone number	

[3]

(b) The hairdresser could use a relational database.

Give **one** other type of database he could use.

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

(c) The database could have user and supervisor modes.

Describe the difference between user and supervisor modes.

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..... [2]

(d) The data in the database can be found using indexed sequential access. A set of indexes is used to facilitate indexed sequential access to data.

Describe how customer data can be accessed using indexed sequential access with at least **two** sets of indexes.

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..... [4]

7 A school has a local area network (LAN).

(a) Identify **two** characteristics of a LAN.

Characteristic 1

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Characteristic 2

..... [2]

(b) The LAN provides communications between computers.

Why is communication needed between computers?

.....

..... [1]

(c) Some of the signals coming into the network are analogue. The network is digital. The analogue signals need to be converted to digital signals.

Describe how analogue signals are converted to digital signals.

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..... [3]

(d) Bandwidth is an important factor in networks.

Define bandwidth.

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..... [1]

8 A graphics company has a large number of stand-alone computers.

The company is considering networking the computers together.

(a) Describe **three** disadvantages, to the users, of networking the computers together.

Disadvantage 1

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Disadvantage 2

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Disadvantage 3

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[6]

(b) The company could use email or a bulletin board to hold discussions with its customers.

Explain the advantages of using a bulletin board instead of email for the discussions.

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[6]

9 A scaffolding company has a stand-alone computer.

The managing director has been told that the company needs to be registered under the Data Protection Act (1998) (DPA).

(a) Identify **four** of the principles of the DPA.

Principle 1

.....

Principle 2

.....

Principle 3

.....

Principle 4

..... [4]

(b) The managing director is concerned about the health problems arising from prolonged use of the computer.

Identify different solutions for the following health problems:

(i) Carpal tunnel syndrome

.....

..... [1]

(ii) Fatigue

.....

..... [1]

- (c) Other employees of the company need to use the computer. The managing director wants them to sign a code of conduct before they can use it.

Identify **two** statements that should be in a code of conduct.

Statement 1

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Statement 2

..... [2]

Turn over for last question

[11]

Quality of Written Communication [4]

[Total: 90]

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