OCR
RECOGNISING ACHIEVEMENT

ADVANCED GCE

COMPUTING
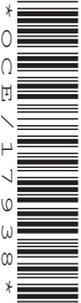
Integrated Information Systems

2511

Candidates answer on the Question Paper	Monday 14 June 2010 Afternoon
OCR Supplied Materials: None	**Duration:** 1 hour 30 minutes
Other Materials Required: None	

2511

Candidate Forename		Candidate Surname	

Centre Number						Candidate Number				

INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use 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, however additional paper may be used if necessary.

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.
- No marks will be awarded for using brand names of software packages or hardware.
- This document consists of **12** pages. Any blank pages are indicated.

Examiner's Use Only:	
1	19
2	31
3	14
4	13
5	9
QWC	4
Total	90

OCR is an exempt Charity

Turn over

Ken Worthy has been running a club for people to play games on games consoles. He has a large number of members who pay an annual fee which depends on their age category. Each member has a membership card with a magnetic stripe on the back. The three categories are:

- A 8 years or over and under 12 years,
- B 12 years or over and under 18 years,
- C 18 years or over.

He uses an off-the-shelf integrated package for administration purposes. He employs a number of people to do the administration of the business. Ken now has a large number of games and many copies of all of them. Each copy has its own identification code. Members have asked if they can borrow games to play on their own consoles.

1 (a) A systems analyst has been asked to produce a system to keep details of all loans that are made.

State **four** methods of fact finding that the systems analyst may use, and for each of these methods state **one** advantage.

Method 1 ....

....

Advantage ....

.... **[2]**

Method 2 ....

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Advantage ....

.... **[2]**

Method 3 ....

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Advantage ....

.... **[2]**

Method 4 ....

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Advantage ....

.... **[2]**

(b) After analysing the problem, the systems analyst must design the solution.

Describe the design stage in the systems life cycle.

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.... **[6]**

(c) (i) State a method of data input that may be used when a member borrows a game.

.... **[1]**

(ii) Describe the processing that needs to take place when the data has been entered.

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.... **[4]**

4

2 The following entity-relationship diagram (ERD) shows the structure of the current database. This needs to be expanded to include the loans.

| MEMBER |————◁| GAME PLAYED |▷————| GAME |

(a) State the relationship between MEMBER and GAME in the case of loans.

....

.... **[1]**

(b) Expand the above ERD to enable it to be also used for loans.

[5]

Members may borrow a number of games at the same time. The maximum length of a loan is three weeks. A member may borrow and return a game on the same day and then borrow it again that day.

Each member has a 6-digit membership number between 100000 and 999999. Each game has an ID consisting of 2 letters followed by 4 digits. (The age group for each game is given a single letter.)

(c) (i) Describe validation methods for the membership number and game ID.

Membership number ....

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....

....

Game ID ....

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.... **[4]**

(ii) State **four** attributes, and their data types, that need to be recorded when a loan is made.

Attribute	Data Type

[4]

(d) The database is used to create personalised letters to members who have loans that are overdue.

   (i) State the type of operating system that should be used to produce these letters and explain why it is appropriate.

   Operating system ....

   Explanation ....

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   .... **[3]**

   (ii) Describe the processing that needs to take place to produce these letters.

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   .... **[6]**

(e) The system needs to produce a report showing how many times each game has been loaned out to members for use at home.

 (i) Design a suitable format for this report.

[4]

(ii) Describe the processing required to produce the report.

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.... **[4]**

3 Ken Worthy has a website to advertise his clubs. He has decided to expand this website so that he can loan games by post.

   (a) Describe **two** facilities that should be available to users of the new website.

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   2 ....

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   .... **[4]**

(b) The designer of the website intends to use HTML to create it.

(i) State the purpose of hypertext linking.

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.... [1]

(ii) Discuss the use of hypertext linking on the website.

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.... [9]

Turn over

4 Ken's suppliers wish him to use e-commerce to order games and pay the bills.

   (a) (i) State what is meant by e-commerce.

     ....

     .... **[1]**

    (ii) State **four** advantages to Ken or his members of using e-commerce.

     Advantage 1 ....

     ....

     Advantage 2 ....

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     Advantage 3 ....

     ....

     Advantage 4 ....

     .... **[4]**

(b) (i) Describe how a firewall can maintain the confidentiality of data.

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.... **[2]**

(ii) Explain how encryption and authentication are used to ensure the privacy of data during data transfer.

Encryption ....

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.... **[4]**

Authentication ....

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.... **[2]**

PLEASE TURN OVER FOR THE LAST QUESTION

5 The supplier of games has a very large warehouse which is used to store games and other equipment required by games players. The owner of the warehouse is considering automating it so that any item can be collected for a shopping basket automatically.

(i) State the meaning of the term sensor and give an example of how it may be used by a robot in the warehouse.

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.... **[2]**

(ii) State the meaning of the term actuator and give an example of how it may be used by a robot in the warehouse.

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(iii) Explain how the automation of the warehouse may be achieved.

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.... **[5]**