

Mark Scheme for June 2010

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All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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- 1 (a) Give 1 mark for naming each method and 1 mark for the advantage of each method to a maximum of 8.

Questionnaire

- A lot of data can be collected in a short period of time
- Not difficult for the users to complete as responses may only require marking/ticking boxes
- Does not require the same amount of time to complete for a user compared to an interview
- All questionnaires could be batched
- and read by an OMR/OCR device/automatic data entry [2]

Interview

- Detailed responses can be given to questions
- Further questions can be asked depending on user responses
- Analyst and the users can build up a working relationship
- Users can express their needs and concerns in detail
- Questions can be tailored to individual users [2]

Observation

- Allows the analyst to see a current process/task/activity first hand
- Analyst can get a "feel" of user competence and abilities in doing a task
- Analyst can get a better idea of time required to do a task/of constraints/of current system [2]

Record/Documentation Inspection

- Analyst can get an idea of the volume of data stored
- See what data has been collected and stored
- Can see how data has been verified and validated
- See how the data is manipulated [2]

Group Meetings/Discussions

- Quicker than interviews
- True picture of what is happening (which may not be the same as management are thinking) [2]

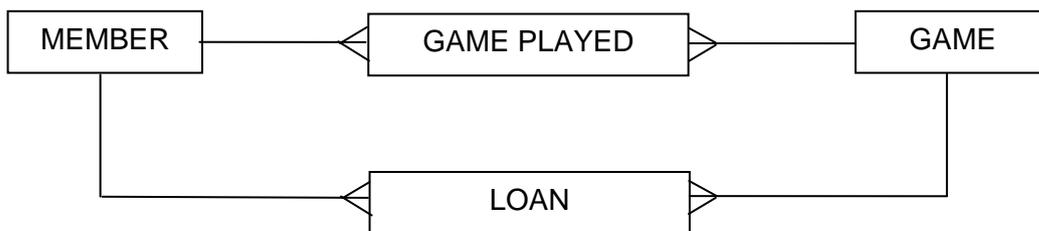
- (b) Give 1 mark per point to a maximum of 6.

- Specification of the system
- User Interface design
- Specification of data structures
- Prototyping
- Algorithms
- Files/file structure
- Input/form design
- Output/report design
- Validation procedures
- Security of data [6]

- (c) (i) Give 1 mark for the method and up to 4 marks for the processing. [1]
- Bar code reader/magnetic stripe
- (ii)
- Bar code printed on members card/coded in magnetic stripe
 - (is read and) compared with database
 - If not found, eg no beep
 - error message output
 - otherwise code for game read and details entered into database [4]

2 (a) Many-to-Many [1]

- (b) Give 1 mark per point on the diagram.
- The original ERD
 - A new link entity between MEMBER and GAME that is sensibly named eg LOAN
 - A one-to-many relationship between MEMBER and the link
 - A one-to-many relationship between GAME and the link



[5]

- (c) (i) Give 1 mark per point in each case eg
- Membership number: Make sure it is an integer between 100000 and 999999 [2]
 - Game ID: Use a mask for 2 letters followed by 4 digits [2]

(ii) Give 1 mark per row.

Attribute	Data Type
Member Number	Integer
Game ID	String
Date of Loan	Date/Time
Time of Loan	Date/Time

[4]

- (d) (i) Give 1 mark for the OS and 1 mark per point for explanation to a maximum of 2.

OS Batch Processing

- Large amount of data may have to be processed
- in the same way
- Doesn't need human intervention
- Can be done at a quiet time (eg night)

[3]

- (ii) Give 1 mark per point to a maximum of 6

- Filter loans
- For members with overdue loans
- check no letter has been sent
- Insert member details
- and loan details
- into standard letter template
- in positions indicated in template
- Print result
- Repeat for each member
- Until all are printed

[6]

- (e) (i) Give 1 mark per point shown on a diagram to a maximum of 4

- Suitable heading eg Name of club and "List of Members"
- Date of report
- Details of each member inc. name, address, DOB/Age/Age group
- In alphabetical order of name
- Page number
- Sensible layout

[4]

- (ii) Give 1 mark per point to a maximum of 4

- Search loan table for each loan
- For each game copy in the loan table, count number of times the game has been on loan
- Use foreign key in the loan table
- To find details of game in game table
- Print the heading and date
- and column headings
- Print details of each game and number of times on loan

[4]

- 3 (a) Give maximum 2 marks per facility.
- Pay for loans/subscriptions on-line
 - ... safely
 - ... using credit/debit card

 - Search for information
 - ... about games
 - ... including age limits

 - Enquiry system
 - ... to see which games are available
 - ... and which are overdue **[4]**
- (b) (i) To enable the user to navigate the site/www **[1]**
- (ii) In each case, give 1 mark per point, maximum 2.
- Hotwords
 - Words marked by underlining/different colour/picture
 - ... that allows a user to click on them

 - Buttons
 - Labelled rectangles/shapes/icons
 - ... and cause the computer to link to another site/part of current site

 - HTML
 - Mark-up language
 - ... developed for multimedia documents
 - ... and links to other documents
 - underlying code
 - that has an address
 - to another part of the site
 - or to an anchor on the same page
 - or to another website
 - using its URL **[9]**
- 4 (a) (i) Use of the internet to do business. **[1]**
- (ii) Give one mark per point to a maximum of 4
- Members can order a loan 24/7
 - Deliveries/returns can be handled automatically
 - Can test members' needs without expensive questionnaires
 - ... that are rarely answered
 - Shortens times between requesting a loan and receiving it
 - Can keep adverts for new games up-to-date
 - No need for cash/cheques
 - Money can be directly transferred from member to club **[4]**

- (b) (i) Give 1 mark per point to a maximum of 2.
- It sits between a LAN/PC and a WAN/internet
 - ... and uses menus/IP addresses/applications in incoming messages
 - ... to validate incoming data
 - ... and to block unwanted data
- [2]

- (ii) Give 1 mark per point to a maximum of 4 for encryption
Give 1 mark per point to a maximum of 2 for authentication

Encryption

- Apply a mathematical function
 - ... using a key value
 - ... to scramble a message
 - Sender has public key to encrypt
 - Receiver has private key to decrypt
- [4]

Authentication

- Uses a digital signature
 - ... which is a code attached to the message
 - to ensure that message is genuine/from the sender
 - Mention of digital certificates
- [2]

- 5 (i) Give 1 mark for description and 1 for example
- A device that responds to a physical property/heat/touch/humidity
 - Eg Touch sensor, Bar code reader
- [2]

- (ii) Give 1 mark for description and 1 for example
- A device activated by signals (from a computer) causing physical movement
 - Eg motors
- [2]

- (iii) Give 1 mark per point that is clearly explained to a maximum of 4.
- Each item has a barcode that can be read automatically by a robot
 - ... that collects the items listed by a computer
 - A robot is sent a radio message
 - ... using aerials
 - ... to indicate where the item is in the warehouse
 - Computer works out position of robot
 - ... and guides it to its destination
 - The computer delivers the items to a delivery point
- [5]

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