

1.

A relational database has been developed for a youth club to store information about their members and the awards they are given.

The database contains two tables: **Member** and **Award**

The figure below shows some data from the tables.

Member

MemberID	FirstName	LastName	DateJoined
1	Zarah	Tariq	2020-01-05
2	Penny	Hill	2020-01-05
3	Peter	Boyes	2020-02-14
4	Reuben	Bailey	2020-10-20

Award

AwardID	MemberID	DatePresented	AwardName
1	1	2020-09-10	Teamwork
2	1	2020-10-13	Outdoors
3	3	2020-06-19	Challenge
4	2	2020-11-11	Leader

(a) Define the term **relational database**.

(2)

(b) State **one** benefit of using relational databases.

(1)

(c) State the name of the field from the **Member** table that is the most suitable to use as the primary key.

(1)

(d) State the name of the field from the **Award** table that is a foreign key.

(1)

The figure above has been included again below.

Member

MemberID	FirstName	LastName	DateJoined
1	Zarah	Tariq	2020-01-05
2	Penny	Hill	2020-01-05
3	Peter	Boyes	2020-02-14
4	Reuben	Bailey	2020-10-20

Award

AwardID	MemberID	DatePresented	AwardName
1	1	2020-09-10	Teamwork
2	1	2020-10-13	Outdoors
3	3	2020-06-19	Challenge
4	2	2020-11-11	Leader

- (e) The youth club needs to produce a report listing the members who have been given the Leader award. The report must include both names of each member and the date the award was presented.

Write an SQL query that could be used to find this information. The results must be in order of the date the awards were presented, starting with the earliest.

(6)

- (f) A new member joins the youth club. The following SQL is run to add their details to the database:

```
INSERT INTO A  
B (5, 'Alina', 'Ahmed', '2020-11-30')
```

Some of the SQL has been replaced by labels.

State the SQL that should have been written in place of the labels **A** and **B**.

(2)

(Total 13 marks)

2.

A relational database is being developed to store information about the games that are available to play at a games café and the advance bookings that have been made for those games. Each game has a unique name.

The database contains two tables: **Game** and **Booking**.

The database is currently being tested by the person who has developed it so the database tables only contain a small amount of data that is being used for testing.

The contents of the tables are shown below.

Game

Name	MinPlayers	MaxPlayers	LengthOfGame	Complexity
Friday	1	1	25	2.12
Scythe	1	5	90	3.37
Terra Mystica	2	5	100	3.95
Agricola	1	4	90	3.31
Pandemic	2	4	45	2.42

Booking

GameTableID	Name	Date	StartTime	Customer	Hours
1	Friday	28/05/19	11	Hawkins	1
2	Scythe	28/05/19	11	Jemisin	1
3	Pandemic	28/05/19	15	Gormally	1
1	Pandemic	28/05/19	13	Van Perlo	2
1	Terra Mystica	29/05/19	15	Hawkins	2

(a) State the field in the **Booking** table that is a foreign key.

(1)

(b) State the most suitable data type to use for the `Complexity` field.

(1)

(Total 2 marks)

3.

Due to a change in layout at a games café, the game table with an ID of 2 is no longer suitable for games that can have more than four players. The manager needs to find out the customer, date and time of all bookings made for the game table with an ID of 2 that are for a game that can have more than four players.

Write an SQL query that could be used to find this information for the manager. The results should be shown in date order.

(Total 6 marks)

4.

The `LengthOfGame` field shows the average amount of time it takes to play a game in minutes.

A query to add 10 minutes to the length of time taken for all games that have a `Complexity` of more than three is shown below.

```
UPDATE Game  
  
SET LengthOfGame = LengthOfGame + 9  
  
WHERE Complexity <= 3
```

The query contains two errors. Refine the query to correct the errors.

(Total 2 marks)

Mark schemes

1.

(a) **2 marks for AO1 (recall)**

A database with multiple tables;
that are linked together // that reference each other;

2

(b) **Mark is for AO1 (understanding)**

Maximum of **one** mark from:

Reduces data redundancy;
Reduces data inconsistency;

1

(c) **Mark is for AO2 (apply)**

MemberID;

I. case

R. if quotation marks around response

R. if obvious space(s) in response

1

(d) **Mark is for AO2 (apply)**

MemberID;

I. case

R. if quotation marks around response

R. if obvious space(s) in response

1

(e) **6 marks for AO3 (program)**

Maximum of **five** marks if any errors

1 mark: Three correct fields in SELECT clause;

1 mark: one correct table in FROM clause;

1 mark: second correct table in FROM clause;

1 mark: a correct condition in WHERE clause;

1 mark: correct conditions and correct usage of AND in WHERE clause // correct conditions and correct usage of ON with INNER JOIN;

1 mark: a correct ORDER BY clause;

DPT. use of incorrect key words when their versions are meaningful in the context of the question, eg GET instead of SELECT or use of AND instead of commas in FROM clause.

DPT. incorrect spelling of field names.

A. Table names in front of field names provided the table names are correct

A. == in place of = (**for this year only**)

I. missing ASC in ORDER BY clause

I. case and spacing

R. missing quotes around 'Leader'

Sample answer 1

```
SELECT FirstName, LastName, DatePresented
FROM Member, Award
WHERE Member.MemberID = Award.MemberID
AND AwardName = 'Leader'
ORDER BY DatePresented ASC
```

Sample answer 2

```
SELECT FirstName, LastName, DatePresented
FROM Member, Award
WHERE Member.MemberID = Award.MemberID
AND AwardID = 4
ORDER BY DatePresented ASC
```

Sample answer 3

```
SELECT FirstName, LastName, DatePresented
FROM Member INNER JOIN Award ON Member.MemberID =
Award.MemberID
WHERE AwardName = 'Leader'
ORDER BY DatePresented ASC
```

Sample answer 4

```
SELECT FirstName, LastName, DatePresented
FROM Member INNER JOIN Award ON Member.MemberID =
Award.MemberID
WHERE AwardID = 4
ORDER BY DatePresented ASC
```

(f) **2 marks for AO3 (program)**

Member ; **A.** correct bracketed list of field identifiers after Member

VALUES ;

I. case

R. plural of Member

R. singular of VALUES

2

[13]

2.

(a) **1 mark for AO2 (apply)**

Name;

1

(b) **1 mark for AO2 (apply)**

Real // Float // Decimal;

1

[2]

3.

6 marks for AO3 (program)

1 mark: correct fields in SELECT clause

1 mark: one correct table in FROM clause

1 mark: second correct table in FROM clause

1 mark: a correct condition in WHERE clause

1 mark: correct conditions and correct usage of AND in WHERE clause //

correct conditions and correct usage of AND in WHERE clause and

correct usage of ON with INNER JOIN

1 mark: ORDER BY clause

Max 5 if any errors

Sample answer

```
SELECT Customer, Date, Time
FROM Booking, Game
WHERE Booking.Name = Game.Name
AND MaxPlayers >= 4
AND GameTableID = 2
ORDER BY Date
```

I. the inclusion of ASC, DESC in ORDER BY clause

Alternative answer

```
SELECT Customer, Date, Time
FROM Booking INNER JOIN Game ON Booking.Name = Game.Name
WHERE MaxPlayers >= 4
AND GameTableID = 2
ORDER BY Date
```

[6]

4.

2 marks for AO3 (refine)

1 mark: changing +9 to +10;

1 mark: changing <=3 to >3

UPDATE Game

SET LengthOfGame = LengthOfGame + 10

WHERE Complexity > 3

[2]