KIND POSITIVE YOURSELF

Revision Questions 1 – Database Design & Development

ANALYSIS QUESTION

1. In Formula One motor racing, teams can enter two drivers for each race. Every driver has a unique number on their car, which is allocated annually at the start of each new racing season. A database is required to store data on the teams, drivers and race results since the sport started in 1950. Users would be able to collate information on team or driver wins to find the most successful racers or find how the success of teams has changed over the years.

   State two functional requirements of the above database. 2

   _____

   _____

DESIGN QUESTION

2. Many sports clubs in Scotland have one president but they have many members. A member can only belong to one club. Complete the entity-occurrence diagram below to represent the relationship between clubs, presidents and members. 2

3. The International Bowling Federation maintains a relational database that consists of three linked tables, storing data on players, tournaments and tournament entries. Extracts from these tables are shown below.

(a)

Tournament			
tournamentID	country	place	eventDate
1	UK	Preston	13/05/2017
2	France	Le Mans	29/08/2017
3	USA	Miami	08/09/2017
4	Germany	Berlin	12/03/2018
...	...	...	...

Player				
playerID	forename	surname	rating	playerCountry
1645	Barry	Simpson	1756	USA
1873	Sue	Pollock	1260	Australia
2093	Ahmed	Ali	1934	UK
...	...	...	...	...

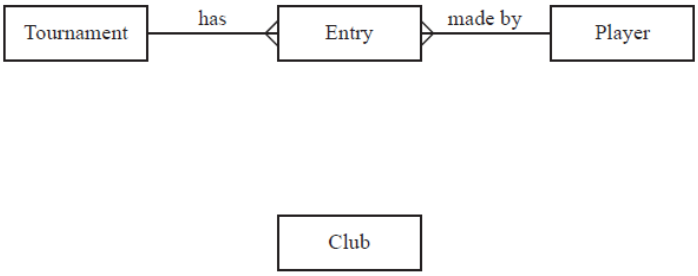
Entry			
tournamentID	position	prizeMoney	playerID
1	1	15000	1645
1	2	7000	1873
1	3	1000	9834
2	1	12000	1873
2	2	6000	1842
2	3	1500	9023
3	1	30000	1873
3	2	22000	1009
3	3	15000	0293
3	4	5000	3742
...	...	...	...

Identify the compound key used in the Federation's database. 2

_____

_____

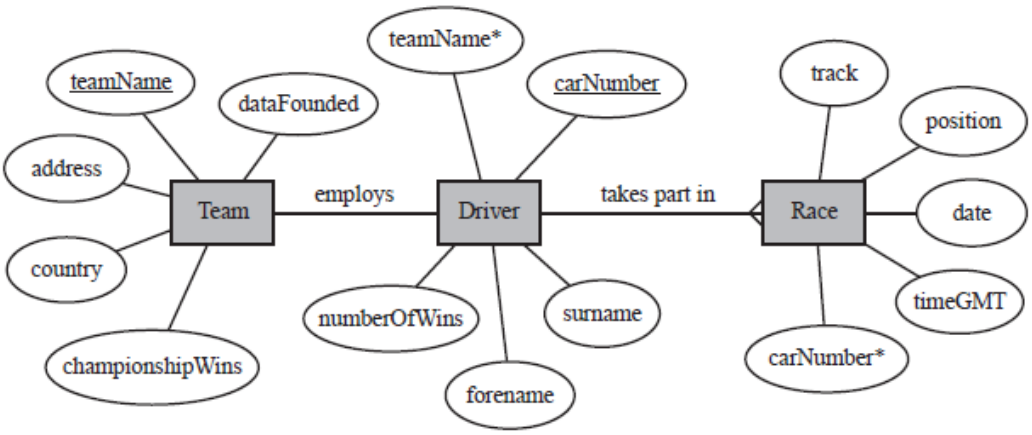
(b) Each player can only be a member of one bowling club. Complete the entity-relationship diagram below to show how the club could be added to the database.



4. In Formula One motor racing, teams can enter two drivers for each race. Every driver has a unique number on their car, which is allocated annually at the start of each new racing season. A database is required to store data on the teams, drivers and race results since the sport started in 1950. Users would be able to collate information on team or driver wins to find the most successful racers or find how the success of teams has changed over the years.

The entity-relationship diagram below shows how information on the teams, drivers and the races since 1950 could be stored. There are errors in the design. Describe three errors in the design below.

3



5. Tables can be related by different types of relationships. State the type of relationship between the two tables in each case below.

a) People and Hobbies 1

b) Jockeys and Horses in a horse race 1

6. A hardware company uses a relational database with the four tables shown below.

Customer	Item	Order	Sale
Customer ID	*Item ID*	*Order no*	*Order no **
Customer name	*Description*	*Customer ID **	*Item ID **
Customer address	*Cost*	*Date*	*Quantity*
Customer email	*Image*		

a) A database table may have a compound key. State what is meant by the term compound key. 1

b) Identify a suitable compound key for the **Sale** table. 1

c) Draw an *entity-relationship diagram* to illustrate the relationships between the four tables. 3