

Name:

Total: /40

Grade:

## National 5 Computing Science

## Database Test

### Analysis

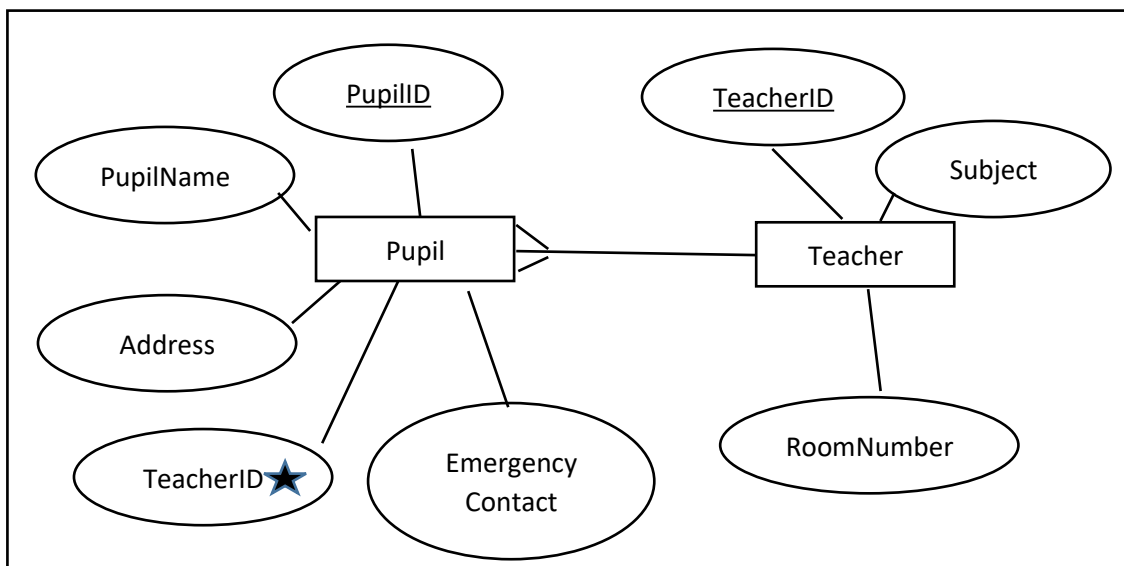
1. Explain what should happen at the analysis stage of database development. (1 mark)

Any understanding of clarifying the design, identifying features implemented, evaluating if fit for purpose, end user requirements, functional requirements.

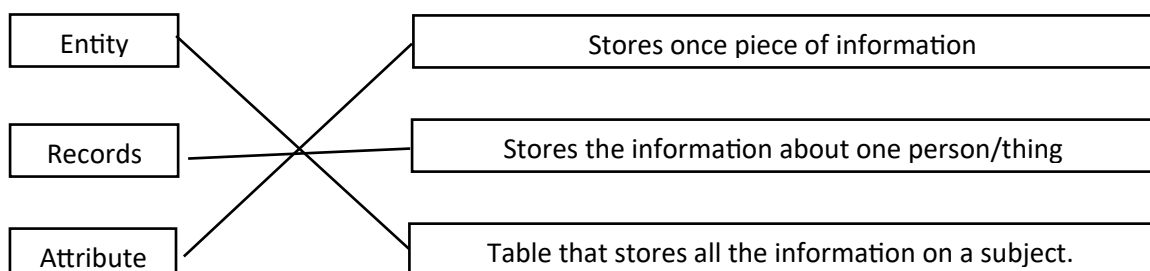
2. Draw an Entity Relationship Diagram for the following Primary school database (3 marks)  
1 mark for relationship, 1 mark for all attributes, 1 mark for correctly identifying PK and FK

Entity: Pupil  
Attributes: PupilID  
PupilName  
Address  
TeacherID  
Emergency Contact

Entity: Teacher  
Attribute: TeacherID  
RoomNumber  
Subject



3. Match the words to the correct description. (3 marks)



## Design

4. At the design stage a data dictionary must be created highlighting all fields, data types, validation etc. Name and describe two different types of validation. (4 marks)

ANY FROM

Restricted Choice – list of options – reduced error

Presence check -Ensures that a field cannot be left blank.

Range check – enter value between two numbers

Field Length check – restricts the amount of characters – cant type any more than a set amount

2 marks for naming both with no description.

5. The data dictionary will also state if a field is a primary or Foreign Key. What is a primary key? (1 mark)

**Field** that is used to uniquely identify a **record** in a table. (1 MARK)

Must mention **unique** for 1 mark

6. What is a Foreign Key? (1 mark)

Primary key from another table used to link multiple tables in relational databases. (1 MARK)

7. Complete the table below highlighting the most suitable datatypes for the fields. An example record is given for you. (4 marks)

First Name	Megan	Text(1 MARK)
Surname	Smith	Text(1 MARK)
DOB	31/01/2003	Date/Time(1 MARK)
Gender	Female	Boolean(1 MARK) ACCEPT TEXT

8. An ENTITY(1 MARK) RELATIONSHIP (1 MARK) DIAGRAM (1 MARK) is a graphical representation of a relational database. (3 marks)

9. During design you must design any queries. These will be written in a language called SQL. What does SQL stand for? (2 marks)

S STRUCTURED QUERY LANGUAGE

1 MARK = 2 CORRECT 2 MARKS = 3 CORRECT

10. What is the difference between a simple and complex search? (2 marks)

Simple search will only contain 1 condition (1 MARK) whereas a complex search will include 2 or more conditions. (1 MARK)

1 mark for each correct description.

11. What is the difference between a flat file and relational database? (2 marks)

Flat file database: all data will be stored in one table which could result in data inconsistency or data duplication (1 MARK). Relational database uses multiple linked tables. (1 MARK)

1 mark for each correct description.

12. Design a query to list the town name, hotel name, and star rating of all 5 star hotels in the Ayrshire area from a table called Hotels in alphabetical order. (4 marks)

Field(s)	Town name, hotel name, star rating (1 MARK)
Table(s)	Hotels (1 MARK)
Criteria	Star rating = 5 Town = Ayrshire (1 MARK)
Sort Order	Hotel name Ascending (1 MARK)

## Implementation

13. Write the SQL for the following query design. (4 marks)

Field(s)	Firstname, Surname, DOB
Table(s)	Pupil
Criteria	Born after 01/11/2004
Sort Order	Oldest to Youngest

~~SELECT firstname, surname, DOB (1 mark)~~

FROM Pupil (1 mark)

WHERE DOB > 01/11/2004 (1 mark)

SORT BY DOB DESC (1 mark)

14. Explain what the following SQL query will do. (2 marks)

```
INSERT INTO Pupil (pupilID, firstname, surname, test1, test2, test3)
VALUES ("1012", "Joanne", "Roberts", "56", "46", "87");
```

15. Add a record into the pupil table(1 mark), with the information into the relevant fields(1 mark). Explain what the following SQL query will do. (2 marks)

```
UPDATE Team
SET teamname = "Ayrshire Arrows"
WHERE teamID = "54";
```

Will change the record which has a teamID of 54(1 mark) and set the name to "Ayrshire arrows"(1 mark)

16. Identify the 2 errors in the SQL below and rewrite the correct SQL in the box the corrected query. (2 marks)

```
DELETE TABLE Game
WHEN title = "Fifa 2016";
```

```
DELETE FROM Game (1 MARK)
WHERE title = "Fifa 2016"; (1 MARK)
```

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