# <u>Answer Script</u>

| Question No. 01 |
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Give examples of primary key and composite primary key and foreign key

| Answer No. 01 |
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**Primary Key:** A primary key is a unique identifier for a specific record in a database table.

**Example:** Consider a table called "Employees" with the following columns:
- EmployeeID (Primary Key)
- Name
- Age
- Department

In this case, the "EmployeeID" column can be designated as the primary key, ensuring that each employee in the table has a unique identifier.

**Composite Primary Key:** A composite primary key consists of two or more columns that, together, uniquely identify a record in a table.

**Example:** Let's say we have a table called "Orders" with the following columns:
- OrderID
- ProductID
- CustomerID
- Quantity

In this case, the combination of "OrderID," "ProductID," and "CustomerID" can form a composite primary key. It means that a unique order can be identified by the combination of these three columns.

**Foreign Key:** A foreign key is a column or set of columns in a table that refers to the primary key of another table. It establishes a relationship between two tables.

**Example:** Consider two tables, "Orders" and "Customers." The "Orders" table has a foreign key referencing the primary key in the "Customers" table.
Table: Customers
- CustomerID (Primary Key)

- Name
- Email

Table: Orders
- OrderID (Primary Key)
- CustomerID (Foreign Key)
- Product
- Quantity

In this case, the "CustomerID" column in the "Orders" table is a foreign key that refers to the primary key "CustomerID" in the "Customers" table. It establishes a relationship between the two tables, allowing you to link orders to specific customers.

| Question No. 02 |
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| Make an ERD of an University Management System |
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| Answer No. 02 |
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**ERD of an University Management System:**
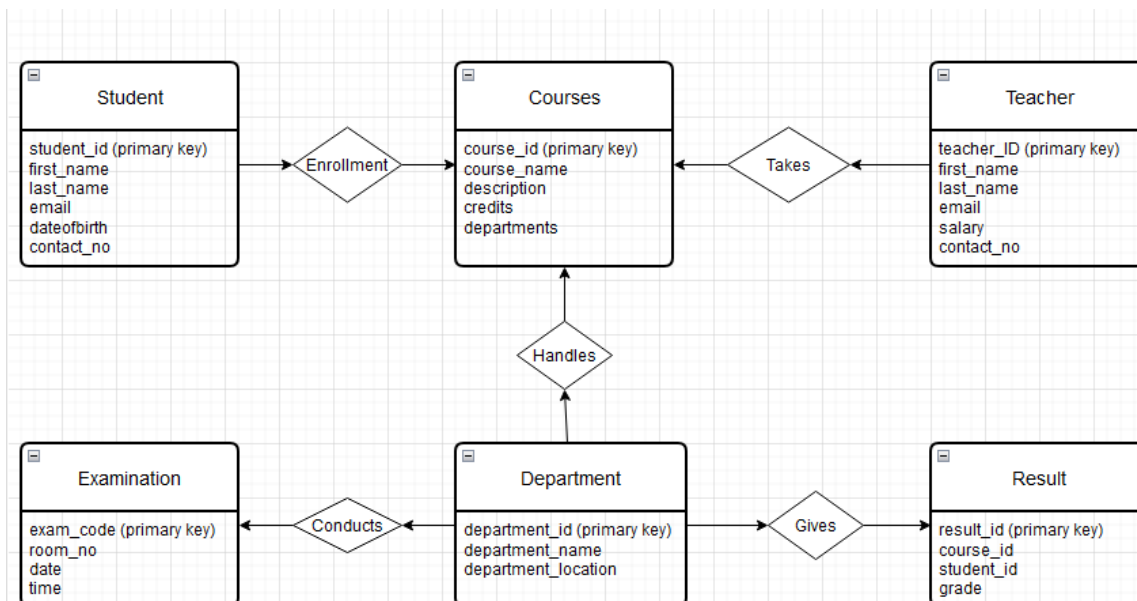
## Question No. 03

Make a table named User which will have the following fields
- a. Username
- b. Email
- c. First Name
- d. Last Name
- e. Phone No
- f. Address
- g. HSC Result
- h. Date of Birth
- i. Age
- j. password

## Answer No. 03

```
create table User(
    Username varchar(30),
    Email varchar(30),
    FirstName varchar(30),
    LastName varchar(30),
    PhoneNo INT,
    address varchar(100),
    HSCResult float(10),
    DateOfBirth date,
    Age INT,
    password varchar(30)
);
```

| Question No. 04 |
|---|
| Write proper constraints of question no 3 and create table |
| **Answer No. 04** |

```
create table User(
        Username varchar(30) Primary Key,
        Email varchar(30) unique not null,
        FirstName varchar(30),
        LastName varchar(30) not null,
        PhoneNo INT unique,
        address varchar(100) unique not null,
        HSCResult float(10) not null,
        DateOfBirth date not null,
        Age INT not null,
        password varchar(30) unique not null
);
```

| Question No. 05 |
|---|
| Write the disadvantages of redundancy and incompleteness in database design. |
| **Answer No. 05** |

There are several disadvantages of redundancy and imcompleteness in database design. Some of them are:

**Data Inconsistency:** Redundancy often results in data duplication across multiple tables or records, making it challenging to maintain data consistency.
**Increased Storage Requirements:** Redundant data consumes additional storage space, leading to increased storage costs and resource utilization.
**Reduced Performance:** Incomplete database designs may require more complex queries to gather the necessary information. This can result in slower query execution times.

**Difficulty in Data Retrieval:** Incompleteness can lead to missing or unavailable data, making it difficult to retrieve accurate and comprehensive information.

**Data Integrity Risks:** Incomplete data can result in missing key pieces of information required for maintaining data integrity and enforcing business rules or constraints.

**Complexity in Database Design:** Redundant and incomplete data can make the database schema more complex than necessary, making it challenging to understand and maintain the overall design.

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### Question No. 06

From HR Database, Select the employee who has last name starts with "k" or ends with "k"

### Answer No. 06

SELECT *
from employees
WHERE last_name LIKE "K%" or last_name LIKE "%K";

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### Question No. 07

From HR Database Select the employee who gets more salary than his/her manager

### Answer No. 07

select e.first_name as Employee
from employees e JOIN employees m
ON (e.manager_id = m.employee_id) AND (e.salary > m.salary);

| Question No. 08 |
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| From HR Database, print all the employee names along with department names |
| **Answer No. 08** |

```
select e.first_name, d.department_name
from employees e left join departments d
on e.department_id = d.department_id;
```