

Date  
23/9/20

Name → Harmanpreet Singh BTCS501-18  
Class - Z 5th Sem  
Roll no - 1914577

PAGE NO. : \_\_\_\_\_  
DATE : / / (1)

## Section A

Q1 Define referential integrity constraint.

In the referential integrity constraint, if a foreign key in Table 1 refers to the primary key of Table 2, then every value of the foreign key in Table 1 must be null or be available in Table 2.

Table	Emp	Name	Sno	Foreign key
1	1	Jone	11	
	2	Hill	25	
	3	Som	27	

Relationship

	Sno	Address	Table 2
	11	Punjab	
	25	Himachal	

Q2 Examine purpose of data independence

Data independence is defined as a property of DBMS that helps you to change the database schema at one level of database system.

without requiring to change the schema at the next higher level. Data independence helps you to keep data separated from all programs they make use of it.

Two types of Data independence :-

1. Physical data independence.
2. Logical data independence.

3Q Outline the term query processing.

As Query processing is the activity performed in extracting data from the database.

In query processing, it takes various steps for fetching the data from the database.

These are the steps :-

1. Parsing and translation
2. Optimization
3. Evaluation.

4. List DCL and TCL Commands with Syntax:-

DCL :- DCL is Data Control Language.  
lets take a look at a DCL statement

1. GRANT :- GRANT Command gives permission to SQL user.

Syntax :- GRANT privilege-name  
ON object-name  
TO User-name (PUBLIC | role-name)  
[WITH GRANT OPTION];

2. REVOKE :- It is used to cancel previous granted or denied permissions.

Syntax :- REVOKE privilege-name  
ON object-name  
FROM User (PUBLIC | role-name)

# TCL :- It is known as Transaction control language.

# Command :- COMMIT :- Commit command is used to permanently save any transaction. Syntax : Commit ;

1914577

PAGE NO. : \_\_\_\_\_  
DATE : / /

9

Example    START TRANSACTION;  
                INSERT INTO student (name, last);  
                COMMIT;

# Roll Back :- It Reverts all the  
changes made previously.

Syntax :- rollBack;

Example :- START TRANSACTION;  
                INSERT INTO student (name, last);  
                ROLLBACK;

P.T.O

1914577

PAGE NO.:

DATE:



## Section B

TQ Compare file system and DBMS system.

B

### DBMS

1. DBMS gives an abstract view of data that hides the details.

2. DBMS is a collection of data. In DBMS, the user is not required to write the procedures.

3. DBMS provides good protection mechanism.

4. Redundancy is controlled in DBMS.

### File System

1. File System provides the detail of the data representation.

2. File System is a collection of data. In this, the user has to write procedure for managing the database.

3. It is very difficult to protect a file under file system.

4. Redundancy is not controlled in file system.

P.T.O

(5)

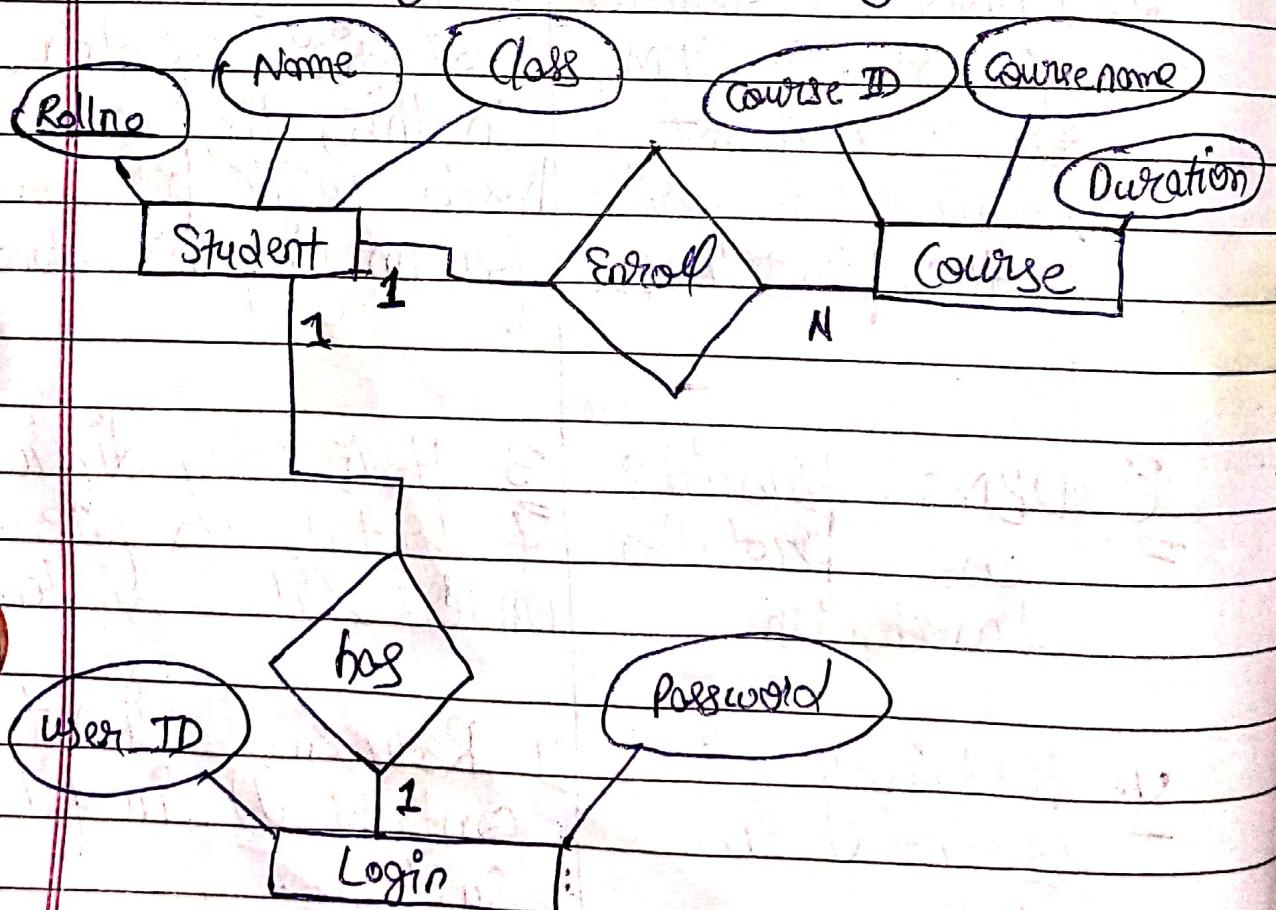
DBMS

file system.

(6)

Unauthorized access  
is restricted in  
DBMSNot in the  
file system.

(6)

DBMS provide  
back up and recov-  
eryData lost in the  
file system can't  
be recovered.~~(6) Student information ER diagram~~

Section - C

89 Discuss relation of algebra and its functions with suitable example.

89 Relational database systems are expected to be equipped with a query language that can assist its users to query the database instances.

Relational Algebra :- Relation of algebra is a procedural query language, which takes instances of relations as input and yields relations as output. It uses operators to perform queries. An operator can be either unary or binary. They accept relations as their input and yield relations as their output. Relation algebra is performed recursively on a relation and intermediate results are also considered relations.

# The fundamental operations of relational algebra are :-

# Select

# Project

# Union

# Set different

# Cartesian product

# Rename

# We will discuss all these operations :

1. Select operation :- It selects tuples that satisfy the given predicate from a relation.

Notation :-  $\text{op}(r)$

where  $\sigma$  stands for selection predicate and  $r$  stands for relation  $\sigma$  is prepositional logic formula which consists of connectors like and, or, not.

For example :-

$\sigma_{\text{subject} = \text{"database"} \text{ (Boobs)}}$

Output :- Select tuples from Books where Subject is database

1914577

PAGE NO. : \_\_\_\_\_  
DATE : / /

(9)

o subject = "database" and price = "4"

output :- Select tuples from Books  
where subject is 'database'  
and 'price' is 45.

2. Project operation (Π) :- It projects  
column(s) that  
satisfy a given predicate.

Notation -  $\Pi_{A_1, A_2, \dots, A_n} (r)$

Where  $A_1, A_2, A_n$  are attribute names  
of relation  $r$ .

For example :-  $\Pi_{\text{subject}, \text{author}} (\text{Books})$

Select and projects columns named  
as subject and author from the  
relation Books.

3. Union Operation (U) :-

It performs binary union between  
two given relations and  
is defined as :-

$$r \cup s = \{ t \mid t \in r \text{ or } t \in s \}$$

1914577

PAGE NO.:

DATE: / /

(10)

Notation - RUS

where R and S are either database relations or relations in result set.

For example

$\Pi \text{author}(\text{Books}) \cup \Pi \text{author}(\text{A})$

Output :- Projects the names of the authors who have either written a book or an article or both.