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SHAKARPUR NEW DELHI – 110092**

SESSION

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SEMESTER – 4TH

DEPARTMENT

Computer Engineering

ROLL. NO.

1802051005

SUBJECT

DBMS

SUBMITTED TO

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Assignment-1

Q.1. Define the following Database terms -

(a) Data

Data may be defined as Known facts which can be recorded and have implicit meaning. Data is now an isolated fact from which the required information is produced.

(b) Information

Information is processed, organized or summarized data. Data are processed to produce information which is meaningful to the recipient.

(c) DBMS

DBMS stands for DataBase Management System which is a system software, allow access to data contained in a database & provide a convenient way for insertion, updation, deletion & processing of data.

(d) RDBMS

RDBMS stands for relational database management system. It is a DBMS which store data in form of relational tables & is based on relational model invented by E.F Codd.

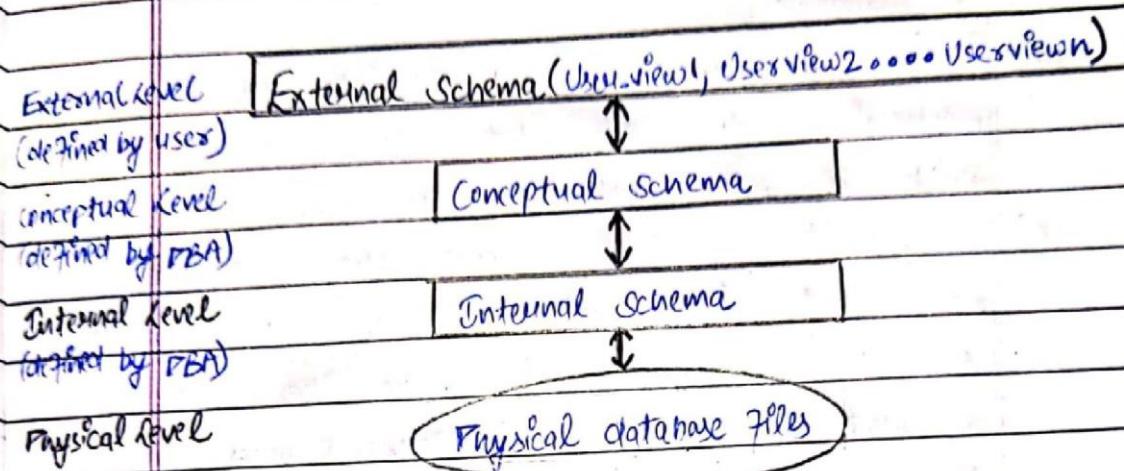
Q2: Difference between Database system & File system.

PBMS	File system	
<ul style="list-style-type: none"> • No/minimum data redundancy. • Data inconsistency does not exist. • Accessing database is not easier. • Data isolation exist which allow multiple transactions occur at same time. • Atomicity & Integrity problems are not found. • Data is secured with backup facility. 	<ul style="list-style-type: none"> • Data redundancy exist. • Data inconsistency exist. • Accessing files are not difficult at all. • Data is scattered in various files in different format. • Atomicity and integrity problems are found. • Data security is not good. 	External (defined by conceptual defined by Internal (defined by Physical

Q3: Enumerate the applications of DBMS.

- Agriculture
- Banking
- Universities
- Railway Reservation
- Medical
- Manufacture
- Airlines
- Telecommunication
- Finance
- Sales
- population census
- Medical
- And many more commercial online applications

Q4. Draw PBMS 3-Tier Architecture and explain Internal level, conceptual level and External level.



Internal Level

It is concern with the following activities:-

- Physical representation of database on computer.
- How the data is stored in database.
- Storage space allocation for data.
- Record description of storage.
- Record placement
- Data compression and encapsulation techniques.

Conceptual Level

It is concern with the following activities

- The logical structure of database.
- Constraints of data (CHECK, UNIQUE, DEFAULT, NULL etc)
- The relationship among data.
- Semantic information on data (Rules & conditions)
- checks to retain data consistency & integrity.
- Security Information

External Level

It is concerned with the following activities:-

- Consist of different no. of external views of the database.
- Provides a powerful and flexible security mechanism to the data from user's view which is not relevant to him.
- It permits user to access the data in a way that is customized to their needs, so that, same data can be seen by different users in different ways at the same time.

Q5: Explain physical data independence and logical data independence.

Answer

Physical Data Independence :-

The ability to change the internal (physical) schema without affecting the conceptual (logical) schema is called as physical data independence.

The changes in Internal (Physical) schema are-

- Using new storage device.
- Using different data structure.
- Switching from one access method to the another.
- Using different file organization or storage structure.
- Modifying Indexes.

Logical Data Independence

The ability to change the conceptual (logical) schema without affecting the external (application program) schema is called as logical data independence.

The changes in conceptual (logical) schema are :-

- Addition of new entities, attributes or relationship to the conceptual schema.
- Deletion / Removal of existing entities, attributes or relationship to the conceptual schema without affecting the existing application programs.

Q6: Describe the roles of Database Administrator, Database designer and Application Programmer.

Database Administrator

- Person or group of persons who is responsible for the management of database.
- Responsible for giving database access permission to the users.
- Co-ordinating and monitoring the use of database.
- Keeps backup, repairing the damage of database due to hardware or software failure.

Application Programmers

They are responsible for writing application programs which uses the database for performing various information such as retrieving,

creating new information, deleting or changing existing information.

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Database Design

- Responsible for identifying the data which is to be stored in the database.
- choosing appropriate data structure to represent and store the data.
- interact with the database users in order to understand their requirements to design the database which meets the requirement.

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Q2: What
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Answers.

Q3: Define various types of data integrity.

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Answer Data integrity refers to the accuracy and consistency of data stored in database.

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Types of data integrity are :-

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1: Entity Integrity,

This ensures each row in a table uniquely identifiable by specifying primary key.

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2: Domain Integrity

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This ensures the data values inside a database follow defined rules for values, range of format. For this foreign key constraints, CHECK constraint, UNIQUE & default are used.

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3. Relational Integrity

It ensures the relationship between tables remains preserved when data inserted modified or deleted.

4. User Defined Integrity

It allows us to define specific business rules which do not fall into one of the other integrity category.

Q:- What do you mean by database schema, sub-schema, instance? Explain with suitable example.

Answer

Schema

The plan or formulation of schema of the database is known as schema. The schema gives the name of the entity and attributes.

The plan or the format of the schema

remains same but the values filled into these format changes from instance to instance.

Example - (Schema Diagram)

1. Department

DEP-ID DEP-NAM DEP-HEAD

Entity - department Attributes - DEP-ID, DEP-NAM etc.

Description of schema :-

Type - Department (Entity)

DEP-ID

DEP-NAM

DEP-HEAD

{ Attributes

Subschema
A subschema is a subset of the schema.
A plan for a view is often called
sub-schema. Subschema refers to an applica-
tion programmer's view (user view) of data
items are stored.

Og- What
attribute
entity

Example:-

In order to retrieve the DEP-ID and DEP-NAM
from Department Table the following subschema
diagram is followed:-

DEPARTMENT

DEP-ID, DEP-NAME

Instance

An instance of the database is filled
in data-item values or the content of the
database at any point of time.

DEPARTMENT

DEP-ID	DEP-NAM	DEP-HEAD
1001	Computer Engineering	Amitya
1002	ITes & M	Gopal
1003	Civil Engineering	Prince

Q. What do you mean by entity, entity set and attributes? Explain weak entity and strong entity with suitable example.

A.

Entity

It is a real world object distinguishable from other objects. Each entity has some properties which uniquely identify the entity.

Example:-

Each employee of an organization is an entity which has some properties like employee id, name.

Entity Set

The set of entities of same kind which share the same properties of attributes.

Example:-

'Employee' table is an entity set of all employees.

EMP-ID	EMP-NAME	DEPT	DESIGNATION
1001	Ramesh	CE	Lecturer
1002	Kapil	ECE	ASST
1003	Ramul	DE	Lecturer

Attributes

The property of an entity is called an attribute. Attribute are the information about the entity which we want to store.

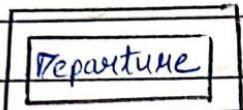
Example:- EMP-ID, EMP-NAME etc.

Weak Entity

In entity which does not have sufficient attributes to form a primary key is called a weak entity. It is represented by double rectangle.

Example:-

DEPARTURE Entity



PEP_DATE

CILDREN Entity



GENDER

Strong Entity

The entity which has a primary key attribute is called a strong entity. It is represented by a rectangle.

ROLLNO

NAME

CHILDREN

GENDER

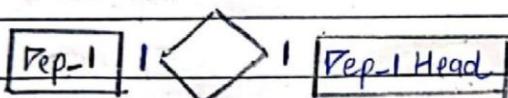
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Q10. Explain various types of relationships used in E-R database model?

Answer The association between entities is known as relationship. Following are the different types of relationship:-

1: One to One (1:1)

One record in table-A is associated with only one record in table-B. Ex(Driver's license), (Airson-passport)



2: One to many (1:M)

One record in table-A is associated with more than one record in table-B.



Examples:- (Department - employee), (Mother - children)
(student - books)

3: Many to Many (M:M)

One record in Table-A is associated with many records in Table-B and one record in Table-B is associated with many records in Table-A.



Example:- (BOOK - Author), (course - Teacher)

Q10: Draw an E-R diagram for college Management System with suitable selection of entities, their attributes and relationship among entities.

Answe Entities And, Attributes used in E-R diagram.

- Teacher (Entity)
 - T-Name
 - T-Phone
 - T-ID
- Department
 - Dep-No
 - Dep-Name
 - Dep-Phone
 - Dep-HOD
- Student
 - Std-Name
 - Std-RollNo
 - Std-Phone
 - Std-DOB
 - Std-Address
- Course
 - COURSE-ID
 - COURSE-Credit
 - COURSE-NAME
- Semester
 - SEM-ID
 - SEM-Time
 - SEM-Subjects

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