1] What is DBMS? Explain its advantages.

=> ① "A database management system (DBMS) is a collection of programs that manages the database structure and controls access to the data stored in the database."

② Advantages:

a) Reduction of Redundancies:
Centralised control of data by the DBA avoids unnecessary duplication of data and effectively reduces the total amount of data storage required.

b) Elimination of Inconsistencies:
The main advantage of avoiding duplication is the elimination of inconsistencies that tend to be present in redundant data files.

c) Shared Data:
A database allows the sharing of data under its control by any number of application programs or users.

d) Integrity:
Centralised control can also ensure that adequate checks are incorporated in the DBMS to provide data integrity.

2] What is Data Abstraction? Explain its levels.

→ ① Database systems are made-up of complex data structures. To ease the user interaction with database, the developers hide internal irrelevant details from users. This process of hiding irrelevant details from user is called data abstraction.

② The three levels of abstraction are as:
a) Physical level
b) logical level
c) View level.

3] Who is database administrator? Explain the various functions of DBA.

→ ① One of the main reasons of using DBMS is to have a central control over both data and programs accessing these data.

② A person who has such control over the system is called a Database Administrator.

③ Functions of DBA:
a) Schema definition:
b) Storage structure and access method definition.
c) Schema and physical organisation modification
d) Granting authorization for data access
e) Routine Maintenance.

4) Why are data Models used in Database? Explain its components.

→ ① Data Models is a logical structure of Database.

② Components:

a) Entity: An entity is a person, place, thing or event about which the data is stored.

b) Attribute: An attribute is the characteristic of any entity.

c) Relationship: A relationship describes an association among entities.

d) Constraints: A constraint is a restriction placed on a data to ensure the integrity and consistency of the database.

5) Define :-

a) Entity: An entity is a person, place, thing or event about which the data is stored.
b) Attribute: An attribute is the characteristic of any entity.
c) Relationship: A relationship describes an association among entities.
d) Constraints: A constraint is a restriction placed on a data to ensure the integrity and consistency of the database.

d) Tuple: It is nothing but a single row of a table, which contains a single record.

e) Degree: The total number of attributes which in relation is called ~~of~~ degree of relation.

F) Cardinality: Total number of rows present in a table.

6] Write a note on following :-

a] Primary key : A primary key is a unique identifier. A relational database must always have one and only one primary key.

b) Alternate key : It is a column or group of columns in a table that uniquely identifies every row in a table.

c) Candidate key :- It is a key with no repeated attributes. Candidate keys are also reffered to as primary keys, secondary key, or alternate key.

d) Attribute : Attributes are descriptive properties which are owned by each entity of an entity set.

Types :

a) Simple attributes, Composite attributes, Single valued attributes, Multi valued attributes Derived attributes, key attributes.

e) Strong entity: Strong entity set always has a primary key. It is represented by a rectangle symbol. It contains a primary key represented by the underline symbol.

f) Generalization: It is the abstracting process of viewing set of objects as a single general class by concentrating on the general characteristic of the constituent sets while suppressing or or ignoring their differences.

g) Specialization: It is the abstracting process of introducing new characteristics to an existing class of objects to create one or more new class of objects.

1) Explain relationship with its types:

→ ① A Relationship describes relation between entities. It is represented by diamonds or rhombus

② Types:

a) Binary Relationship

b) Recursive Relationship

c) Ternary Relationship

8] Explain DDL and DML commands:

→ ① DDL command:

a) Data definition language (DDL) is used for specifying the database system schema. It is used for creating tables, schema, indexes, constraints etc. in database.

b) Commands as Create, Alter, Drop.

c) Create: Used for creating, databases and tables.

Alter: Used to add, delete or modify columns in existing table.

Drop: Removes a component in from a relational database system.

② DML commands:

a) Data manipulation language (DML) is the language that enables users to access or manipulate data as organised by the appropriate data model.

b) Commands are Select, Insert, Update, delete.

c) Select: It returns a result of set of records from one or more tables.

Insert: It is used to add new data to database.

Update: It changes the data from one or more tables.

Delete: It is used to delete existing records in a table.