DATBASE CONCEPTS

Database

- Database is a collection of organized DATA/INFORMATION
- Data is organized into rows, columns i.e. in the tables form
- It works like a container which contains the various object like Tables, Queries, Reports

DBMS-

- It is a collection of multiple tables. OR It is collection of logically related data.

OR

- It is computerized record keeping information system.

Examples of DBMS software are
Dbase, Foxpro, Oracle, MS SQL Server, MS Access, Paradox, DB2, FileMaker and MySQL etc.

Advantages of Database

- reduces Redundancy(duplication)
- facilitate Sharing of Data
- Provides Security
- maintains Integrity(rules /condition)

Different types of Databases
RDBMS-(Relational Database management system). e.g. MS Access, MySQL, Microsoft SQL Server, IBM DB2
ORDBMS-(Object Relational Database management system.) e.g. Oracle

RELATIONAL DATABASE

- It is a collective set of multiple data sets organized by tables, records and columns
- It establishes a well-defined relationship between database tables
- It uses Structured Query Language (SQL),
- SQL- is a standard user application that provides an easy programming interface for database interaction.

RELATIONAL DATABASE TERMS

- **Relation** - Relation is a collection of rows and columns . It is also called Table.
- **Attribute/field/column**-A column in a relation is called an attribute. It is also termed as field or column.
- **Degree**-No of columns/attributes in a relation
- **Tuple/Record**-A row in a relation is called a tuple. OR – Collection of fields in a relation
- **Cardinality**-No of rows/record/tuples in a relation
- **Domain**-It is pool of values from which the value is derived for a column.

KEYS IN A DATABASE
it is used for identifying unique rows from table & establishes relationship among tables on need.
Primary Key
Primary key is a key that can uniquely identifies the records/tuples in a relation.
This key can never be duplicated and NULL. In a table there can be only be one primary key.

Candidate Key –
A **candidate key** in SQL Server is a column or a combination of columns that can **uniquely identify each row** in a table. Every table can have multiple candidate keys, but only one is chosen as the **primary key**, while the rest are called **alternate keys**. In a table there can be multiple candidate keys
Alternate Key-

Out of all candidate keys, only one gets selected as primary key, remaining keys are known as alternate or candidate key . In a table there can be multiple alternate keys.

Foreign Key-

Foreign Key is a key that is defined as a primary key in some other relation. Foreign key can accept duplicate data.

Question:1

Modern Public School is maintaining fees records of students. The database administrator Aman decided that-

Name of the database -School
Name of the table – Fees
The attributes of Fees are as follows:
Rollno - numeric
Name – character of size 20
Class - character of size 20
Fees – Numeric
Qtr – Numeric

(i) Identify the attribute best suitable to be declared as a primary key
(ii) Write the degree of the table.
(iii) Define attribute and cardinality.

Question:2

Write SQL Commands for the following queries based on the relations PRODUCT and CLIENT given below.

Table: Product

P_ID	ProductName	Manufacturer	Price	ExpiryDate
TP01	Talcum Powder	LAK	40	2011-06-26
FW05	Face Wash	ABC	45	2010-12-01
BS01	Bath Soap	ABC	55	2010-09-10
SH06	Shampoo	XYZ	120	2012-04-09
FW12	Face Wash	XYZ	95	2010-08-15

Table: Client

C_ID	ClientName	City	P_ID
1	Cosmetic Shop	Delhi	FW05
6	Total Health	Mumbai	BS01
12	Live Life	Delhi	SH06
15	Pretty One	Delhi	FW05

(i) Identify the attribute best suitable to be declared as a primary key from the product table
(ii) Identify the foreign key and primary key from the table client
(ii) Write the degree and cardinality of the table product.

Question:3

Observe the following table and answer the question

TABLE: VISITOR

VisitorID	VisitorName	ContactNumber
V001	**ANAND**	**9898989898**
V002	**AMIT**	**9797979797**
V003	**SHYAM**	**9696969696**
V004	**MOHAN**	**9595959595**

1. Write the name of most appropriate columns which can be considered as Candidate keys?
2. Out of selected candidate keys, which one will be the best to choose as Primary Key?
3. What is the degree and cardinality of the table?