LECTURE NO.1		TIME: 30 MIN.

PREVIEW OF TODAY'S TOPICS **A.** Basic Definition in Database, Data Handling in (FMS), Attributes, Rows and Columns	Name: _____ Roll No: _____ Date: _____

BASIC DEFINITION IN DATABASE, DATA HANDLING IN (FMS), ATTRIBUTES, ROWS AND COLUMNS

EXTENSIVE QUESTION

Q.1 Explain the following terminologies

- **File**
- **Record**
- **Field**
- **Table**

SHORT QUESTIONS

(i) **Define the data handling in file management system.** (DGK 2022) (K.B)
(ii) **Define the term table.** (GRW 2021) (K.B)
(iii) **What is an attribute? Give an example.** (FSD 2022) (RWP 2022) (K.B)
(iv) **What do you know about file?**
(v) **Differentiate between field and record.**

BASIC DEFINATION OF DATABASE

Definition:

A database is a collection of logically related data sets or files. Normally, these files/datasets are of different nature, used for specific purposes.

These may be organized in various ways to meet various processing and retrieval requirements of the organizations or users.

Field:

(i) A field is a unit of data consisting of one or more characters i.e., Employee number, Employee names or grade of an employee in a record of the employee.

Record:

(i) A collection of related data items treated as a single unit is called a record.

File:

(i) A collection of related records treated as a single unit is called a file or a data set.
(ii) Actually all the data will be saved onto hard disk as a combination of "0"s and "i"s
(iii) Each field will occupy the space as would be allocated at the time of its definition.

DATA HANDLING IN FILE MANAGEMENT SYSTEMS (SQ) (DGK 2022)

- **Definition:**

Each field is given fixed or variable length sequences of bytes and they are put together contiguously in fixed or variable length collection called records.

- **(i)** Each field corresponds to a proper starting memory address.
- **(ii)** As the field have already been given proper lengths, so the values of each field are determined within these memory addresses.
- **(iii)** The field names are used only as a "name reference" within the programs using them.
- **(iv)** Their values "flows" with them as the contents of the memory spaces they are occupying.

ATTRIBUTES, ROWS AND TABLES

- **(i)** In 1960s the researchers came up with an idea of using Relational Databases instead of file structures.

- **(ii)** They gave the idea of defining a file as a "Two Dimensional' array (or table having a unique name", placing all the fields as columns (having unique names) of that table and putting each record as a row into the table.

- **(iii)** Each row is also known as a tuple or occurrence in the table.

- **(iv)** The traditional file structure change to a new and easy to manage database structure called Table or Relation.

MULTIPLE CHOICE QUESTIONS

(i) A two dimensional table of the data is called a: (LHR 2022) (DGK 2022)
OR
In relational database, table is also called:
(a) Group	(b) Set
(c) Declaration	**(d) Relation**

(ii) In a relational database, a single piece of information: (BWP 2022) (MTN 2021)
(a) Record	(b) Row
(c) Field	(d) Entity

(iii) An attribute is also known as: (LHR 2018)
(a) Record	(b) Row
(c) Field	(d) Relation

(iv) A category of data or information that describes an entity is called a:
(a) Attribute	(b) Data Item
(c) Record	(d) Tuple

(v) A person, place, thing, event or condition about which data is kept in the database is called:
(a) Attribute	(b) Field
(c) Record	**(d) Entity**

SHORT QUESTIONS

(i) Define the term table?   (GRW 2021) (K.B)

Ans: A two-dimensional array of data that consists descriptive information about an entity is known as table or relation. The relations are used to store information about an entity.

(ii) What is an Attribute? Give an example?   (FSD 2022) (RWP 2022) (LHR 2015) (K.B)

Ans: The named columns of the relation are called attributes. In a relation, each attribute has a unique name. For example Rollno, Stud_Name etc.

(iii) **What is File?** (K.B)

Ans: A collection of related record treated as a single unit is called file. Files are stored in computer hard disk. For example A student file may contain the records of thousands of students. Each students record consists of same field but each field have different data.

(iv) **Differentiate between Field and Record?** (U.B)

Ans: Following are the differentiate between field and record: (LHR 2016)

FIELD	RECORD
• A field is a single piece of information.	• Collection of related data field is called record. Data is stored in records.
• A record is a row of a database, a horizontal grouping of fields; the content of those fields (column) is unique to that row.	• A record is composed of fields and contains all the data about one particular person, company, or item in a database.
• For example student name and id are two different fields.	• For example record of a student consist of name, class, section, marks.

LECTURE NO.2	TIME: 30 MIN.

PREVIEW OF TODAY'S TOPICS

B.   Relation or Table and Properties of relation

RELATION OR TABLE AND PROPERTIES OF RELATION
EXTENSIVE QUESTION

Q.1   How the table / relations are formed up in DBMS and write down properties of relations in details?

Q.2   Write the down properties of a relation in details.   (LHR 2017)

### SHORT QUESTIONS

(i)   Define entity give an example.   (LHR 2022) (BWP 2022) (DGK 2022,21) (K.B)

(ii)   Write the down properties of a relation.   (DGK 2022) (BWP 2021) (U.B)

(iii)   What do you know about relation?   (GRW2021) (U.B)

RELATION OR TABLE   (GRW 2021)

(i)   A two-dimensional array or table of data containing descriptive information about an entity.

(ii)   The entity must have a unique identifier, which is composed of a combination of one or more attributes, and each attribute must have one and only one value.

(iii)   It is appropriate to define the word Entity here.

- **Entity:** An entity is anything about which you want to keep information in the database.

(i)   Let us consider an example of "Student Information System", which has entities like student, teacher, course list, scholarships, time-tabling etc.,

(ii)   The entities involved in this case are the same and the entity "student" can be defined in the form of database modeling as follows:

**(iii)**   STUDENT (STUD_NO, STUD_NAME, STUD-GENDER-CD, STUD-B-DTE, STUD_ADDR, STUD-TEL-NO)
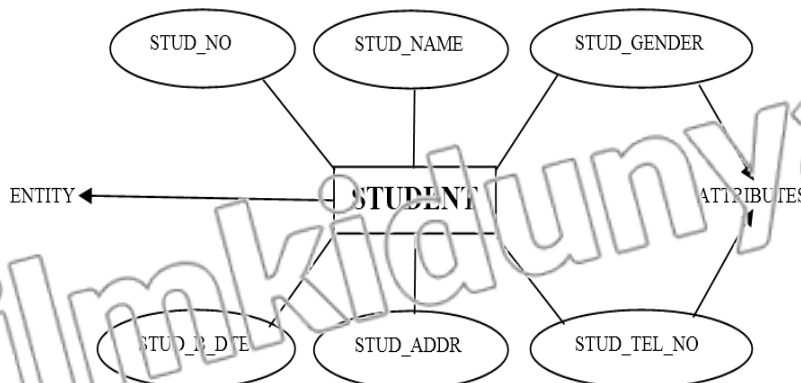
- **Columns and Rows:**

All the attributes are called columns of the table and all occurrences of the records are called rows.

PROPERTIES OF RELATION

Definition:
(i) A Relation or a Table is the basis of Relational DBMS.
(ii) Must have certain inherent characteristics that form the basis for its underlying strength and flexibility.
(iii) Because of these features, an application implemented by using such a system is much more flexible and can be easily modified, when alterations or enhancements to the underlying data base take place.
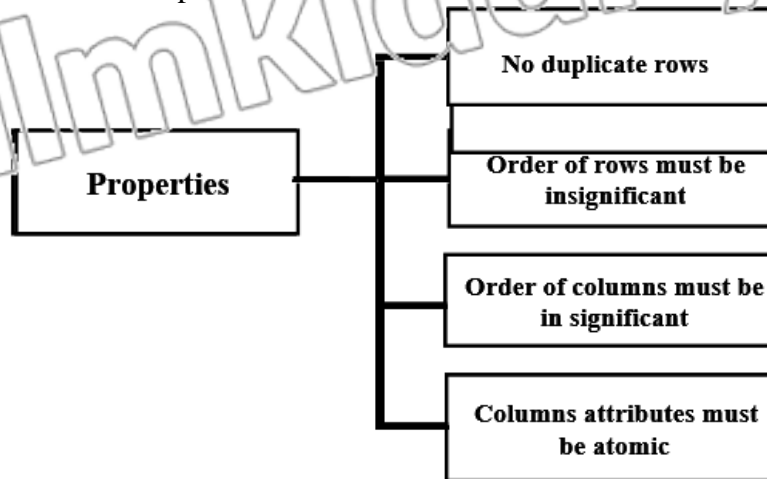
- **No duplicate rows exist:**
    - **(i)** No two rows can be identical.
    - **(ii)** It will also violate the definition of what a relation represents.
    - **(iii)** There must be a unique key for each row in a relation / table.
- **The order of Rows is insignificant:**
    - **(i)** There is no ordering or sequencing of the rows in the tables.
    - **(ii)** The relational implementation of the tables support all required access mechanism.
    - **(iii)** It is not necessary to sequence the rows according to the key field.
- **The order of Columns is insignificant:**
    - **(i)** The order of the columns/ attributes defined in a relation/table has no significance.
    - **(ii)** The later insertions of the columns are made at end of the existing columns by the system itself.
    - **(iii)** The system acquires the data (of columns) by their names.
- **Columns/Attributes are all Elemental or Atomic:**
    - **(i)** All the intersections of Rows and Columns must have a (single) value.
    - **(ii)** The nulls are inserted by the system at the time of later insertion of a column.
    - **(iii)** This should immediately be replaced by zero / spaces or valid values for that particular column.

MULTIPLE CHOICE QUESTIONS

(i) **Which of the following represents an entity?**

(a) Car   (b) Student

(c) House   **(d) All of these**

(ii) **The row of a table or relation are known as?**

(a) Tuples   **(b)** Occurrences

(c) Field   **(d) Both (a) & (b)**

(iii) **Which of the following is NOT general characteristic of relations?**
    (a) Each row is unique   **(b) The order columns is significant**
    (c) The order of rows is insignificant   **(d)** Columns are all elemental or atomic

(iv) **The value of columns of a table is:**
    (a) Single value   **(b)** Double value
    (c) Multi-valve   **(d)** All of these

SHORT QUESTIONS

(i) **Define Entity? Give an example.**   **(LHR 2015, 2022) (BWP 2022) (K.B)**
                                                (DGK 2022, 2021)(GRW 2016)
Ans: An entity is any object in the system that we want to model and store information about. Entities are usually recognizable concepts, either concrete or abstract, such as person, places, things, or events which have relevance to the database. Some specific examples of entities are Employee and Student. An entity is analogous to a table in the relational model

(ii) **Define the properties of Relation?**   **(DGK 2022) (BWP 2021) (U.B)**
Ans: Following are the properties of Relation:
(i) No Duplicate Rows Exist
(ii) The Order of Rows is Insignificant
(iii) The Order of Columns is Insignificant
(iv) Columns / Attributes are all Elemental or Atomic

(iii) **What is Table or Relation?**   **(GRW 2021) (K.B)**
Ans: A table or relation is used to store information about an entity. An entity is anything about which information is stored in the database. The entity must have a unique identifier. The identifier is composed of one or more attributes. Each attribute must have one and only one value.

LECTURE NO.3	TIME: 30 MIN.

PREVIEW OF TODAY'S TOPICS

C. View, Indexes, The user, Data administrator, Database administrator

VIEW, INDEXES, THE USER, DATA ADMINISTRATOR, DATABASE ADMINISTRATOR

EXTENSIVE QUESTION

Q.1   Explain the following.

• **Views**	• **Data administrator**
• **DBA**	• **End-User**

SHORT QUESTIONS

(i) Write a note on End-user   (LHR 2021) (SWL 2022) (RWP 2022) (MTN 2021) (K.B)

(ii) State the purpose of index file.   (BWP 2022) (U.B)

(iii) What is a view?   (FSD 2022) (K.B)

(iv) Write the responsibilities of DBA in database system.   (FSD 2022) (SWL 2021)
(LHR 2016)(U.B)

(v) Write the responsibilities of Data administrator.   (LHR 2022)(U.B)

(vi) Write the purpose of indexes.   (GRW 2017)

VIEW

(i) Views are created by using SQL, which is a powerful database language, used for data definition and data manipulation purposes.

(ii) The purpose of using views is purely to keep the data safe and secure from un-authorized and illegal users.

(iii) The views provide the descriptions of relations that are not stored, but constructed as needed from stored relations.

Example of view:

To create a view, normally the following create sql command is used.

```
CREATE VIEW      STUDENT_VIEW_01 AS
SELECT           STUD_NO,STUD_NAME,STUD_ADDR
FROM             STUDENT
WHERE            STUD_GENDER ="M";
```

This will create a view form the **STUDENT** table for only male students, which can be used by the users according authorization given to them, leaving the original tale aside, safe and secure.

INDEXES   (GRW 2017) (SQ)

(i) It is another table created by the system developer/DBA containing the key attributes of the table for which the index is created.

(ii) It has a very vital role in the database management system, especially in RDBMS.

(iii) The important associations defined in the system make use of this. It helps the system run smooth and fast.

THE USER

The users or end-user is simply a person who uses the computers for his specific need. He might have a moderate knowledge of computer, computer science and information technology, and his need to use the computers may be entertainment, education, or professional tasks. He does not need to know the in-depth knowledge of the computer systems, but instead, he should be aware of the installed software he intends to use.

DATA ADMINISTRATOR   (LHR 2022) (SQ)

A data administrator is a person who is responsible for entire data of an organization. He normally develops overall functional requirements for database used in the organization. He controls and manages the whole database system. He establishes data standards and supervises the data distribution in the organization.

He also communicates with the user when necessary. He should participate in developing data dictionary and preparing documentation. He conducts user training when required. He authorizes access to the database. He coordinates and monitors the use of database.

DATABASE ADMINISTRATOR

A database administrator is an important person in development of any database system. He is responsible for the design, implementation, operation, management and maintenance of database. He must be technically competent and a good manager. He should have good communication skills. Managerial skills are important in planning, coordinating and carrying out different tasks. Technical skills are required to understand the complexity of hardware and software. Diplomatic skills are important in communicating with users and determining their needs etc.

MULTIPLE CHOICE QUESTIONS

(i) The person who uses the computers/Databases for his specific need:
(a) Data base Administrator   (b) Data Administrator
(c) **The user**   (d) System analyst

(ii) An index can be used to:
(a) **Improve the performance of the database**
(b) Document the structure of the database itself.
(c) Reduce data dependency for application program
(d) All of above

(iii) The purpose of using views:
(a) Keep the Data save   (b) Keep the Data secure
(c) Helps the system run smooth and fast   (d) **Both (a) & (b)**

(iv) The database user who is responsible for the design, implementation, operation, management and maintenance of database is called: (MTN 2021)
(a) End user   (b) **Database administrator**
(c) Application programmer   (d) Data administrator

SHORT QUESTIONS

(i)   Who is an End-User?   (SWL 2022) (RWP 2022) (LHR 2021) (MTN 2021) (GRW 2016) (U.B)

Ans. A user or an end-user is a person who interacts with DBMS to perform different operations on database such as retrieving, updating, inserting, deleting data etc.

(ii)   State the purpose of index file?   (BWP 2022) (U.B)

Ans: An index is data structure that is used by DBMS to locate a particular record in a file more quickly. Indexes are used to speed up the sorting and searching process. Some indexes are created automatically in the related tables when relationships are defined. The performance of database is improved with these indexes.

(iii) **What is a view?** (FSD 2022) (K.B)

Ans: In DBMS, the part of a table is called view. View is a method to retrieve data from the database. Views are created through SQL (Structure Query Language). The basic purpose of view is to keep the data safe from unauthorized users. A view can display records from the multiple tables.

(iv) **What is the role of DBA in or responsibilities of database system?** (FSD 2022) (K.B)

(SWL 2021) (LHR 2016)

Ans: The database administrator (DBA) plays very important role in DBMS environment. The DBA is responsible for designing, coordinating and monitoring the database system. The DBA is an IT professional. He must be technically competent having excellent communication and management skills.

(v) **Write the responsibilities of data administrator.** (LHR 2015,2022) (GRW 2015) (K.B)

Ans: A Database Administrator is responsible for the design, implementation, operation, management and maintenance of database. Database administrator is responsible to ensure proper database access and security.

LECTURE NO.4	**TIME: 30 MIN.**

PREVIEW OF TODAY'S TOPICS

D. Key and its types

KEY AND ITS TYPES
EXTENSIVE QUESTION

Q.1 What is a key? Describe different types of keys used in database. **(RWP 2018)**

SHORT QUESTIONS

(i) **Define secondary key.** **(LHR 2021)**
(ii) **Write down the function of key.** **(GRW 2021)**
(iii) **Define primary key.** **(SWL 2022) (GRW 2018)**
(iv) **Define foreign key.** **(LHR 2018) (MTN 2022) (RWP 2022) (K.B)**
(v) **Write a note on composite key.** **(GRW 2022) (MTN 2021) (LHR 2016) (U.B)**
(vi) **Define Alternate key.** **(MTN 2022) (K.B)**
(vii) **Distinguish between primary key & foreign key.** **(BWP 2022) (LHR 2015)**
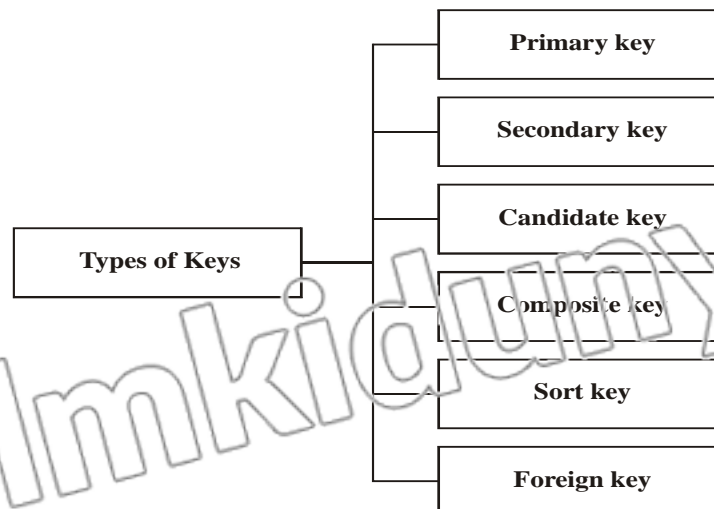
KEY AND ITS TYPES
Definition1:

Key is a single or combination of one or more fields and its purpose is to point/retrieve the data rows from the tables, according to the requirements.

Definition2:

Keys are defined in the relation/tables to access or sequence the stored data fast and smooth or to create the links between them.

TYPES

```
                              ┌──────────────────┐
                              │   Primary key    │
                              ├──────────────────┤
                              │  Secondary key   │
                              ├──────────────────┤
         ┌──────────────┐     │  Candidate key   │
         │ Types of Keys│─────┤                  │
         └──────────────┘     │  Composite key   │
                              ├──────────────────┤
                              │    Sort key      │
                              ├──────────────────┤
                              │   Foreign key    │
                              └──────────────────┘
```

PATIENT

PATNO	PNAME	PHCODE	LOCN	STATUS
145	IQBAL	ME1012	1003010	01
165	JUNAID	ME1014	1038433	01

152	BILAL	ME1525	1341345	01
256	SHEHZAD	ME4565	1353455	01
255	ZOHAIB	ME2543	1234355	01
646	MOHSIN	ME1324	1532533	09
165	WAQAS	ME1644	1522344	01

PHYSICIAN

PHCODE	PHNAME
ME1000	Dr. Alamgir
ME 1001	Prof. Aslam Naqvi
ME 1003	Dr. Aftab Chaudhary
ME 1008	Dr. Ehsan Haider

- **Primary Key:**

  Definition:

  In relation, the attribute (column) or a combination of attributes(columns) that uniquely identifies a row or a record.

  - **(i)** **PATNO** is the attribute that uniquely identifies each patient and thus can be used as a Primary key for the above defined table '**PATIENT'**.
  - **(ii)** On the other hand, **PNAME** is normally not unique, so it cannot be used as a primary key

- **Secondary Key:**

  Definition: A secondary key is non-unique field that is used as secondary (alternate) key.

  - **(i)** In the above table, by using **PHCODE** (physician code) We can scan the records from the table.
  - **(ii)** If physician leaves, we can change it with a new one by using update statement.

- **Candidate Key/Alternate Key:**

  - **(i)** When it is unclear which field to select as the primary key.
  - **(ii)** There might exist some additional field (or combination of fields) that also have the uniqueness property
  - **(iii)** This key can be termed as Candidate keys or Alternate keys.

- **Composite / Concatenate Key:**

  - These keys consist of two or more data elements or attributes.
  - **(i)** Invariably, these are the same as Candidate/Alternate keys except that of uniqueness requirements.
  - **(ii)** In order to make it unique, assign **STATUS** or another attribute (say patient's ID number).

- **Sort /Control Key:**

(i) A sort/ Control key is used to physically sequence the stored date according to our need.

(ii) Multiple attributes can used as sort fields.

- **Foreign Key:**

(i) A Foreign key is an attribute in a table whose values must match a primary key in another table.

(ii) The table in which the foreign key is found is called as dependent table and which it refers is called as parent table.

(iii) Foreign key relationships are the basis for establishing 1:1 or 1:M relationships across the Relations/ Tables in a relational database management system. e.g PHCODE is a foreign key in physician table.

MULTIPLE CHOICE QUESTIONS

(i) **Which key does not hold uniqueness property?** (MTN 2022)
(a) Candidate key | (b) Foreign key
(c) Primary key | **(d) Secondary key**

(ii) **The foreign key is found is?** (SWL 2021,2022) (GRW 2021)
(a) Parent table | **(b) Dependent table**
(c) Pivot table | **(d)** Index table

(iii) **In the relational is the basic structure in which data is stored?** (LHR 2021)
(a) Table | **(b)** Record
(c) Attribute | **(d)** Form

(iv) **A primary key that consists of more than one attribute is called:** (BWP 2021) (GRW 2018)
(a) Foreign key | **(b) Composite key**
(c) Multi- value key | **(d)** Compound key

(v) **How many primary key can a table have?** (LHR 2015)
(a) Only One | (b) At least one, but not more than two
(c) Between 1 and 5 | (d) No limit

(vi) **Which of the following describes the primary key?**
(a) It must be unique | (b) It helps in indexing of large database
(c) It make sorting quicker | **(d) All of these**

(vii) **The selected candidate key is called:**
(a) Primary key | **(b)** Foreign key
(c) Super key | **(d)** Composite key

SHORT QUESTIONS

(i) **Define foreign key.** (LHR 2018) (MTN 2022) (RWP 2022) (K.B)

Ans: A foreign key is an attribute in a table whose values must match a primary key in another table. The table in which the foreign key is found called as dependent table and to which it refers is called as parent table.

(ii) **Define secondary key.** (LHR 2021)

Ans:

(iii) **Define primary key.** (SWL 2022) (GRW 2018)

Ans:

(iv) **Write a note on composite key.** (GRW 2022) (MTN 2021) (LHR 2016) (U.B)

Ans: A key that consists of two or more attribute of a relation is called composite key. It is also referred to as concentrate key.

(v) Define Alternate key. (MTN 2022) (K.B)

Ans: The candidate keys that are not selected as primary key are known as alternate keys. Suppose student relations contains different attributes such as Reg No, Name and class. The attributes Reg No and Roll No can be used to identify each student in the table. If Reg No is selected as Primary Key then Roll No attribute is known as alternate key.

(vi) Distinguish between primary key & foreign key. (BWP 2022) (LHR 2015)

Ans: Following are the difference between Primary key and Foreign key.

PRIMARY KEY	FOREIGN KEY
• Primary key is used for unique identification of rows.	• Foreign key is a field in the table that is primary key in another table.
• We have only one primary key per table.	• A foreign key is a column or group of columns in a relational database table that provides a link between data in two tables.
• A primary key is one of the Candidate Keys or you can say one of the irreducible super key, depends on database designer which one he needs.	• It acts as a cross-reference between tables because it references the primary key of another table, thereby establishing a link between them.

STUDENTS LEARNING OBJECTIVES (SLOs)

MULTIPLE CHOICE QUESTIONS

Knowledge Based Questions

(i) Which of the following can be a primary key? (RWP 2022)
(a) Cast name (b) Salary
(c) Customer Id (d) Region

(ii) Which of the following is correct association? (SWL 2019)
(a) File=Column **(b) Record=Row**
(c) Field=Row (d) Record=Table

(iii) A category of data or information that describes an entity is called a: (DGK 2018)
(a) Attribute (b) Data Item
(c) Record (d) Tuple

(iv) Which of the following is responsible for designing, coordinating and monitoring the database system?

(a) Data Administrator　　　　　　　　(b) End user
(c) Database Administrator　　　　(d) Database Manager

(v) **A candidate key is:**
(a) Primary Key
(b) The primary key selected to be the key of a relation
(c) An attribute or group of attributes that can be the primary key
(d) All of these

Understanding Based Questions

(i) **A table must have.**　　　　　　　**(MTN 2022) (BWP 2022) (DGK 2022) (LHR 2016)**
(a) Primary key　　　　　　　　　(b) Secondary key
(c) Composite key　　　　　　　　　(d) Sort key

(ii) **Which of the following describes the primary key?**
(a) It must be unique　　　　　　　(b) It helps in indexing of large database
(c) It makes sorting quicker　　　　**(d) All of these**

(iii) **Which field listed below is the most appropriate primary key?**
(a) A person's last name　　　　　(b) An employee's salary
(c) A customer's ID number　　　(d) A sales person's region

(iv) **An index can be used to:**
(a) Improve the performance of the database
(b) Document the structure of the database itself.
(c) Reduce data dependency for application program
(d) All of above

(v) **Which of the following are properties of relations?**
(a) Each attribute has a unique name
(b) No two rows in a relation are identical
(c) There are no multi valued attributes in a relation
(d) All of these

Application Based Questions

(i) **Create Command is used to create:**　　　　　　　　**(DGK 2022)**
(a) Table　　　　　　　　　　　(b) Report
(c) Query　　　　　　　　　　　　(d) Form

(ii) **Which of the following is also known as control key?**　　**(SGD 2019)**
(a) Sort Key　　　　　　　　　(b) Composite Key
(c) Primary Key　　　　　　　　　(d) Foreign Key

(iii) **The key used for strictly data retrieval purposes is:**　　**(LHR 2015)**
(a) Sort Key　　　　　　　　　　**(b) Secondary Key**
(c) Primary Key　　　　　　　　　(c) Control Key

(iv) **One field or combination of fields for which more than one record many have the same combination of values is called**
(a) Secondary key　　　　　　　(b) Index
(c) Composite Key　　　　　　　　(d) Linked Key

(v) **An attribute in a relation of a database that serves as the primary key of another relation in the same database is called a:**
(a) Global key　　　　　　　　　　(b) Link key
(c) Foreign key　　　　　　　　(d) Secondary key

SHORT QUESTIONS
Knowledge Based Questions

Q.1 Define Field. (LHR 2016) (GRW 2016)

Ans: A set of related characters that represent a unit of data is called field. Each field is given a unique name known as the field name.

Example:

Roll-No, Name, Address and Marks of a student of a class represent the fields.

Q.2 Define Entity. (LHR 2015, 2022) (BWP 2022)
(DGK 2022, 2021)(GRW 2016)

Ans: An entity is any object in the system that we want to model and store information about. Entities are usually recognizable concepts, either concrete or abstract, such as person, places, things, or events which have relevance to the database. Some specific examples of entities are Employee and Student. An entity is analogous to a table in the relational model.

Q.3 Define Primary key. (SWL 2021) (GRW 2018)

Ans: The attribute or combination of attributes that uniquely identifies a row or record in a relation is known as primary key. A relation can have only one primary key. Primary key cannot contain null value.

Q.4 What is the role of DBA in database system? (FSD 2022) (SWL 2021) (LHR 2016)

Ans: The database administrator (DBA) plays very important role in DBMS environment. The DBA is responsible for designing, coordinating and monitoring the database system. The DBA is an IT professional. He must be technically competent having excellent communication and management skills.

Q.5 Define the properties of Relation? (DGK 2022)(BWP 2021)

Ans: Following are the properties of relation.
- No Duplicate Rows Exist
- The Order of Rows is Insignificant
- The Order of Columns is Insignificant
- Columns / Attributes are all Elemental or Atomic

Q.6 State the purpose of using views. (GRW 2019, 2022) (LHR 2017)

Ans: In DBMS, the part of a table is called view. View is a method to retrieve data from the Database. Views are created through SQL (Structure Query Language). The basic purpose of view is to keep the data safe from unauthorized users. A view can display records from the multiple tables.

Understanding Based Questions

Q.1 Who is an End-User? (SWL 2022) (RWP 2022) (LHR 2021) (MTN 2021)

Ans: A user or an end-user is a person who interacts with DBMS to perform different operations on database such as retrieving, updating, inserting, deleting data etc. End user usually uses menus, icons and button to perform some task. These are normally employees of an organization.

Q.2 Why we create different views of data in database.

Ans: In DBMS, the part of a table is called view. View is a method to retrieve data from the database. Views are created through SQL (Structure Query Language). A view is also known as virtual table. The basic purpose of using views is to keep data safe and secure from unauthorized and illegal users. A view can also display records from multiple tables. The views provide more flexibility and security in displaying data.

Q.3 How indexes help us in order to run system smoothly and fastly? (BWP 2022)

Ans: An index is data structure that is used by DBMS to locate a particular record in a file more quickly. Indexes are used to speed up the sorting and searching process. Some indexes are created automatically in the related tables when relationships are defined. The performance of database is improved with these indexes.

Q.4 How many keys may have unique attributes value?

Ans: Following are keys which have unique value:
- Primary key
- Candidate key/alternate key
- Foreign key

Q.5   Differentiate between DA and DBA.

Ans: Following are the difference between DA and DBA:

DA (LHR 2021)	DBA
• Data Administrator is a person who is responsible for the entire data resource of an organization. He develops functional requirements for the database being used in the organization.	• A Database Administrator is responsible for the design, implementation, operation, management and maintenance of database. Database administrator is responsible to ensure proper database access and security.
• The main job of Data Administrator is to decide what data should be stored in the database and to establish policies for maintaining data, once it has been stored. Usually, the Data Administrator is a manager of the organization and not an IT professional.	• The database administrator (DBA) plays very important role in DBMS environment. The DBA is responsible for designing, coordinating and monitoring the database system. The DBA is an IT professional. He must be technically competent having excellent communication and management skills.

Application Based Questions

Q.1   Which key is used to establish the one to one & one to many relationship?

Ans: Foreign key is used to establish the one to one & one to many relationships.

A foreign key is an attribute or combination of attributes in a relation whose value matches a primary key in another relation. The table in which foreign key is created is known as dependent table. The table to which the foreign key refers is known as parent table.

Q.2   How attributes are placed in table?

Ans: Attributes are the properties or characteristics of an entity. Attributes are always placed column wise in a table. That why, the named columns of the relation are called attributes. In a relation, each attribute has a unique name.

Example: Roll no, Stud Name etc.

Q.3   If user forget his/her primary key value than which key is used by DBA to extract specific record against is her/data.

Ans: Secondary is used because it is a field or combination of fields that is basic for retrieval is known as secondary key. Secondary key is a non-unique field. One secondary key value may refer to many records.

Q.4   State the responsibility of DBA.   (FSD 2022) (SWL 2021)

Ans: Three responsibilities of a database administrator include:
- Assigning permission to different users to use database.
- Monitoring of database system.
- Solving the problems that occur in the database system.

Q.5   Why child table and parent table are used?

Ans: In table relationships, the table that contains the foreign key is called child table.

Similarly, the table to which the foreign key refers is called the parent table.

Q.6 **Difference between parent table & dependent table.** (FSD 2021)

Ans: In table relationships, the table that contains the foreign key is called dependent (child) table. Similarly, the table to which the foreign key refers is called the parent table.