**Learning Activity 3.1: Concept Check Point**

Answer the following questions.

1. What do you mean by a relational database? Give an example.

A relational database is a structured database that stores data in tables (relations) and as new data is added, it does not require tables to be reorganized. A relational database can have multiple parent/child relationships.

An example would be Microsoft SQL.

1. Define the following terms:
   1. Field:

In a database table, a field is a data structure for a single piece of data. Fields are organized into records, which contain all the information within the table relevant to a specific entity.

* 1. Column:

a set of data values of a particular data type, displayed vertically in a table.

* 1. Row:

a data record displayed horizontally within a table. Each row, which represents a complete record of specific item data, holds different data within the same structure.

* 1. Record:

an object that can contain one or more values. Usually displayed in a single row of a table.

* 1. Tuple:

Another name for a row.

* 1. Attributes:

Column headings that describe the data contained within the column. Attributes describe the instances in the row of a database.

* 1. Table:

where all the data in a database is stored. A database consists of one or more tables. Each table is made up of rows and columns.

1. What are constraints?

Constraints are limitations or rules placed on a field/column to ensure that the data entered is valid.

1. List the different types of constraints in database?

Unique Constraints – will only allow unique values in a specified column. No duplicate values.

Check Constraints – limit types of data a user can insert into a DB

Default Constraints – default value in a column

Not Null Constraints – ensures no blank (empty) cells are present.

Primary Key Constraints – must be not null and uniquely identifies each record in a table.

Foreign Key Constraints – element that establishes the relationship in other tables and must point to another primary key in another table.

1. Differentiate between different types of keys in database.

Unique Keys

**Super Key:** a set of one or more attributes that can uniquely identify a row in a table.

**Candidate Key:** key that has only a single attribute or a minimal amount of attributes (minimal super key)

**Primary Key:** A candidate key that is most suited to maintain the uniqueness in a table.

**Alternate Key:** any set of candidate keys that are not chosen as a primary key.

**Surrogate Key:** a unique numeric value that is added to a relation to serve as a primary key. They have no meaning to the users and are usually hidden on forms, queries or reports. They are often used to replace ca composite primary key.

Non Unique Keys

**Foreign Key:** used to establish a relationship between table (cross-reference tables) that points to another table’s primary key.

**Self-Referencing Foreign Key:** the foreign key references back to the primary key within the same table.

1. What are relationships in database? List the types of relationships that can exist among different entities.

A relationship in a database is formed by correlating rows belonging to different tables. A table relationship is established when a child table defines a Foreign Key column that references the Primary Key column of its parent table.

The different types of relationships that can exist are one to one, one to many, many to one and many to many.

1. What is database management system?

A database management system is a system (software) that manages the entire operation of a database.

1. Give few examples of database management system.

Microsoft Access, SQL Server, FileMaker, Oracle

1. What are the components of DBMS?

Software, Hardware, Procedures, Data and Users