



SNS College of Technology, Coimbatore-35.
(Autonomous)



B.E/B.Tech- Internal Assessment -I
Academic Year 2023-2024(EVEN)

Fourth Semester

Computer Science and Engineering
19CST202&Database Management Systems

Time: 1.5 Hours

Maximum Marks: 50

Part-A (5 x 2 =10 Marks)

B

CO Blooms

CO1 Und

1. Define Database Management System and its Applications.

DBMS is used for storing and retrieving the data and it is a collection of inter-related data which is used to retrieve, insert and delete the data efficiently.

- Railway Reservation System
- Banking
- Education Sector

2. Compare database systems with file systems.

CO1 Ana

Used to manage and organise the files stored in the hard disk of the computer	A software to store and retrieve the user's data
Redundant data is present	No presence of redundant data
Query processing is not so efficient	Query processing is efficient
Data consistency is low	Due to the process of normalisation, the data consistency is high

3. Define term tuple.

CO1 Und

A tuple, also known as a record or row, is a basic unit of data in a relational database management system (DBMS). A tuple represents a single instance of a relation, or table, in the database. Each tuple contains a set of values, or attributes, that correspond to the columns, or fields, of the relation.

4. Define key constraints.

CO2 Rem

A key constraint in a Database Management System (DBMS) refers to a set of rules applied to one or more columns in a database table to ensure the uniqueness and integrity of data. Keys are used to uniquely identify rows in a table, and they play a

fundamental role in establishing relationships between tables

5. List out the operations in Relational Algebra. CO2 Rem
- Selection(σ)
 - Projection(π)
 - Union(U)
 - Set Difference(-)
 - Set Intersection(\cap)
 - Rename(ρ)
 - Cartesian Product(X)

Part-B (13+13+14=40 Marks)

6. a. i)Elaborate the three Schema architecture of a database management system with neat diagram. 8 CO1 Und

The main objective of this architecture is to have an effective separation between the user interface and the physical database. So, the user never has to be concerned regarding the internal storage of the database and it has a simplified interaction with the database system.

The three-schema architecture defines the view of data at three levels:

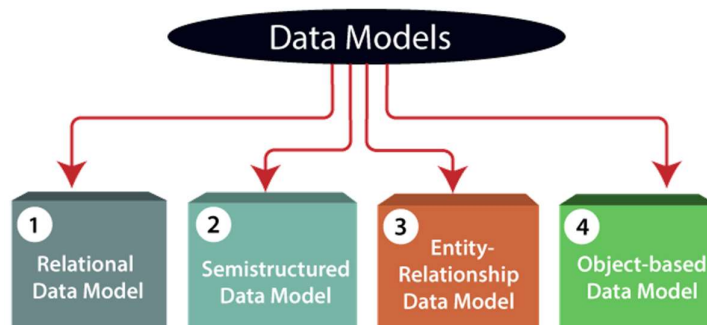
1. Physical level (internal level)
2. Logical level (conceptual level)
3. View level (external level)

- ii)Explain the components of Database Management System 5 CO1 Rem

Hardware, Software, Data, Database Access Language, Procedures and Users

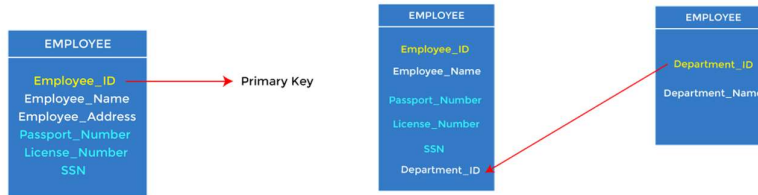
or

- b. Elaborate the types of a data model with neat diagram. 13 CO1 Und



7. a. Explain the distinction among the terms primary, foreign and super key with the below example. 13 CO2 App

Employee(empname, street, city)
 Works(empname, company name, salary)
 Company(company name, city)
 Manages(empname, management)

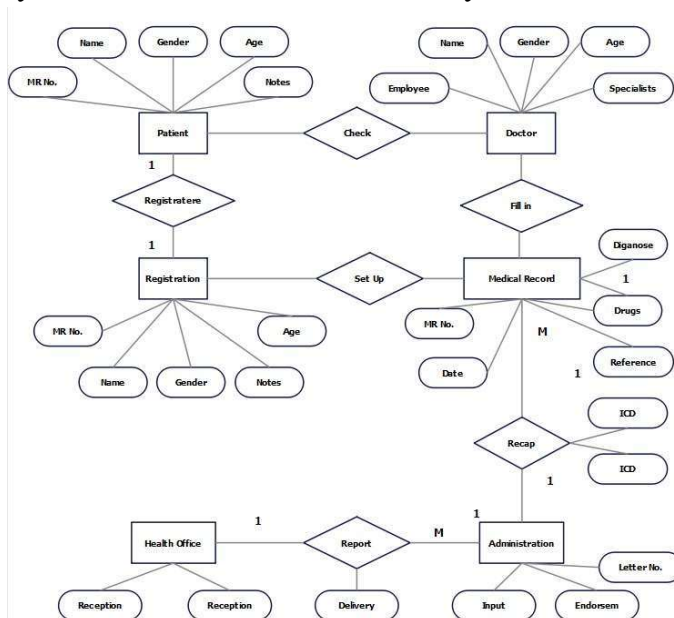


or

b. Elaborate the Relational Algebra and apply the concepts for banking application. 13 CO2 Und

- Notation: $\sigma p(r)$
- Notation: $\prod A_1, A_2, A_n (r)$
- Notation: $R \cup S$
- Notation: $R \cap S$
- Notation: $R - S$
- Notation: $E \times D$

8. a. Construct the ER Diagram for Hospital Management system with their notations and symbols. 14 CO1 App



or

b. Consider the following relations.

Employee(ENo,
Name,Gender,DOJ,Designation,Basicpay,DNo)
Department(DNo, DName)

i) Write the command for table creation using the above relations.

Create Table Employee(Eno Number(10),Name
Varchar(20),Gender number(10),designation
varchar(20),Basicpaynuber(20),Dno number(10));
Create Table Department(Dno Number(10),DName
Varchar(20));

ii) Insert the address attribute in the Employee table.

Insert into Employee (address Varchar (20));

iii) List the details of Employees who work for
DNO=CSE

select table Employee where DNO=CSE

iv) Write the command to remove all the rows in the table
Department

Truncate table Department ;

v) Write the command to delete the table Employee
Delete table Employee;

Rem-Remembering Und-Understanding App-Appling Ana-Analysing Cre-Creating