**SRM Institute of Science and Technology**
**College of Engineering and Technology**
**School of Computing**
SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu

SET D

**Academic Year: 2023-24 (EVEN)**

**Test: CLA-T1** **Date: 06.02.2024**
**Course Code & Title: 21CSC205P – Database Management Systems (KEY)** **Duration:** 50 Minutes
**Year & Sem: II Year / IV Sem** **Max. Marks:** 25

**Course Articulation Matrix:** ***(to be placed)***

| S.No | Course Outcome | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CO1 | | 2 | | | | | | | | | | | 2 | 1 | |
| 2 | CO2 | 1 | 2 | | | | | | | | | | | 2 | 1 | |
| 3 | CO3 | 1 | | 2 | | | | | | | | | | 2 | 1 | |
| 4 | CO4 | 1 | | | | | | | | | | | | 2 | 1 | |
| 5 | CO5 | 1 | 2 | | | | | | | | | | | 2 | 1 | |

**Part - A**
**(5 x 2= 10 Marks)**
**Instructions: Answer all**

| Q. No | Question | Mark | BL | CO | PO | PI Code |
|---|---|---|---|---|---|---|
| **1)** | List down four issues of the File Processing System.<br>**Ans:**<br><br>Issues in File Processing System<br>✓ Data redundancy<br>✓ Data inconsistency<br>✓ Limited Data Sharing<br>✓ Data Dependency<br>✓ Lack of Data Integrity<br>✓ Limited Security<br>✓ Concurrency Control<br>✓ Scalability Issues<br>✓ Limited Query Capabilities | **2** | **L1** | **1** | **1** | **1.3.1** |
| **2)** | What are two major pitfalls which we should avoid while designing a database schema?<br>**Ans:**<br><br>a) Redundancy<br>b) Incompleteness | **2** | **L2** | **1** | **2** | **1.4.1** |
| **3)** | Differentiate Physical with Logical Data Independence.<br><br>**Physical Data Independence** \| **Logical Data Independence**<br>It mainly concern about how the data is stored into the system. \| It mainly concerned about the structure or the changing data definition.<br>It is easy to retrieve. \| It is difficult to retrieve because the data is mainly dependent on the logical structure of data. | **2** | **L2** | **1** | **2** | **1.4.1** |

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| | independence it is easy to achieve physical data independence. | independence it is not easy to achieve logical data independence. | | | | | |
| | Any change at the physical level, does not require to change at the application level. | The change in the logical level requires a change at the application level. | | | | | |
| | The modifications made at the internal level may or may not be needed to improve the performance of the structure. | The modifications made at the logical level is significant whenever the logical structure of the database is to be changed. | | | | | |
| | It is concerned with the internal schema. | It is concerned with the conceptual schema. | | | | | |
| | Example: Change in compression techniques, Hashing algorithms and storage devices etc. | Example: Add/Modify or Delete a new attribute. | | | | | |
| 4) | Mention the roles and responsibilities of Database Administrator(DBA)<br><br>**Ans:**<br>✓ DBA is a person or a group who define and manage the database in all three levels.<br>✓ DBA can create / modify /remove the users based on the requirements.<br>✓ DBA is the super user having all the privileges of DBMS<br>Responsibilities of DBA<br>✓ Install the Database<br>✓ Upgrade the Database<br>✓ Design and Implementation<br>✓ Database tuning<br>✓ Migrating the Database<br>✓ User Management<br>✓ Backup and Recovery<br>✓ Security of the Database in all access points<br>✓ Documentation | | **2** | **L1** | **1** | **1** | **2.1.1** |
| 5) | Integrity Manager: It checks the integrity constraints when the database is modified. | | **2** | **L2** | **1** | **1** | **1.3.1** |
| | **PART B**<br>**(3 x 5 = 15 Marks)** | | | | | | |
| | **Instructions: Answer any Three questions** | | | | | | |
| 6) | The Bank named "ABC" wants to develop database System for different branches. Construct the ER diagram for the following operations<br><br>a) Customer wants to avail loan in a particular branch<br>b) Customer holding account in branch.<br><br>Identify the possible entities and their attribute, the relationships among the attributes.<br><br>**Ans:** | | **5** | **L3** | **1** | **2** | **1.4.1** |

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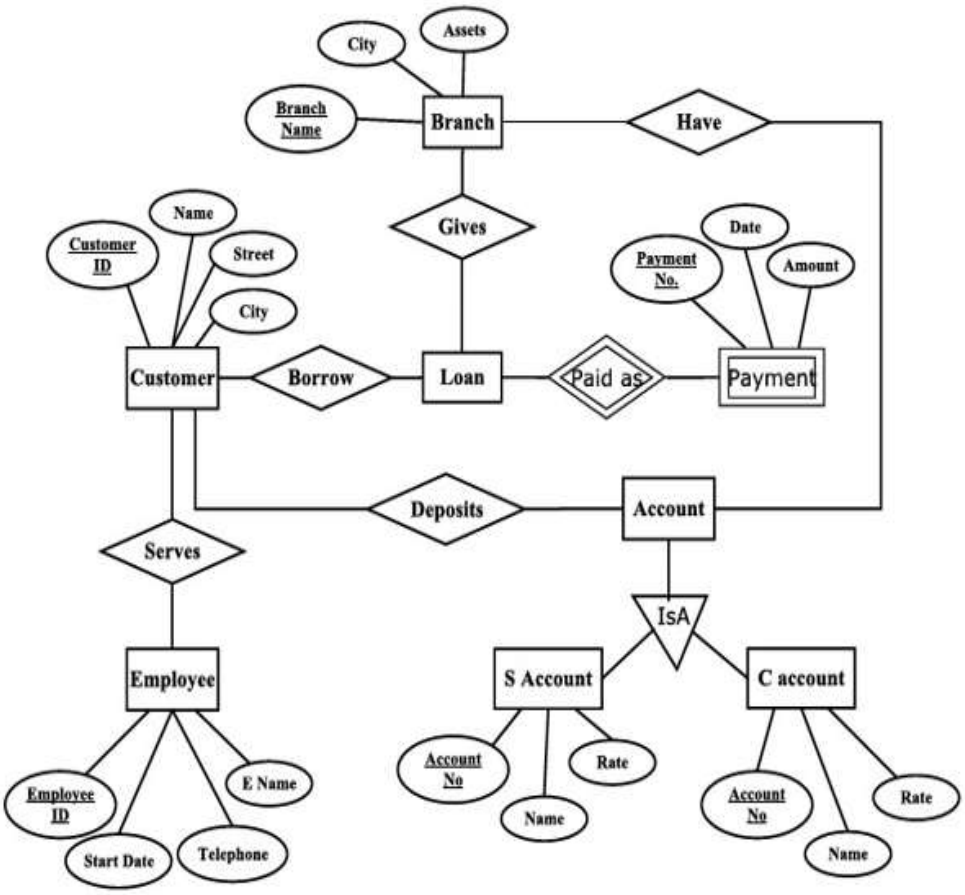
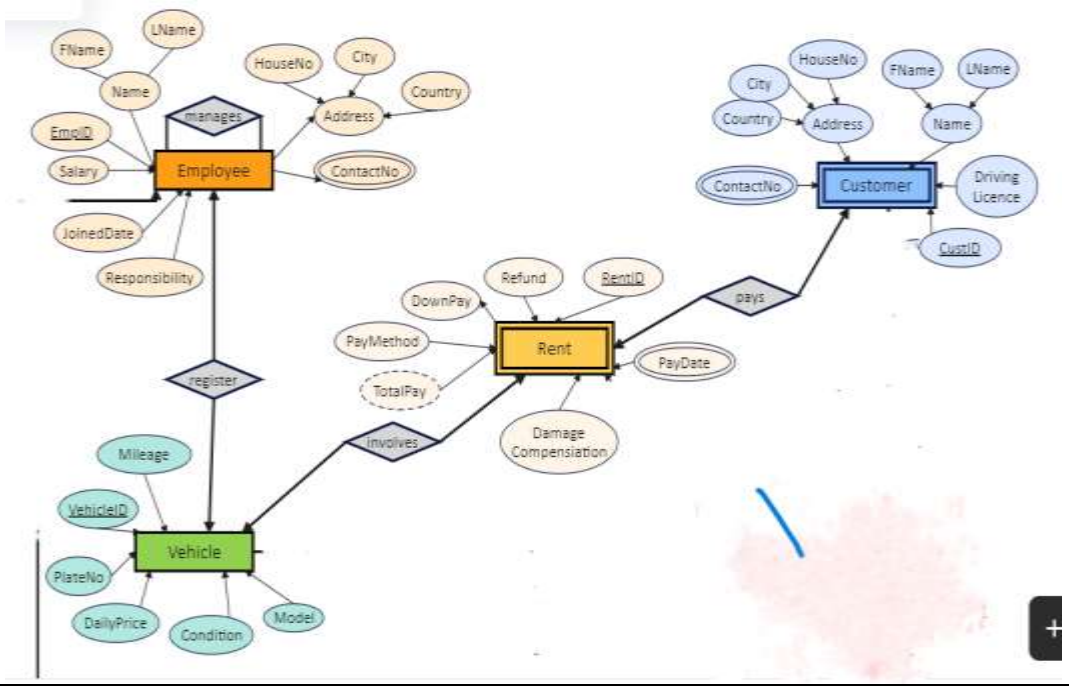
| |  | | | | | |
| 7) | Draw the ER diagram for Online Car Rental System with following Entity sets.<br>• Employee, Vehicle as Strong Entities<br>• Rent and Customer as Weak Entities<br>Identify the suitable attributes, keys of every entity and provide relationship between them.<br><br>**Ans:**<br>  | **5** | **L3** | **1** | **2** | **1.3.1** |
| 8) | a)Elucidate the important features of Hierarchical Model (2 Marks)<br><br>b) Draw the Hierarchical model for Online Clothes Shopping (3 Marks)<br><br>**Ans:** | **5** | **L3** | **1** | **2** | **3.2.2** |

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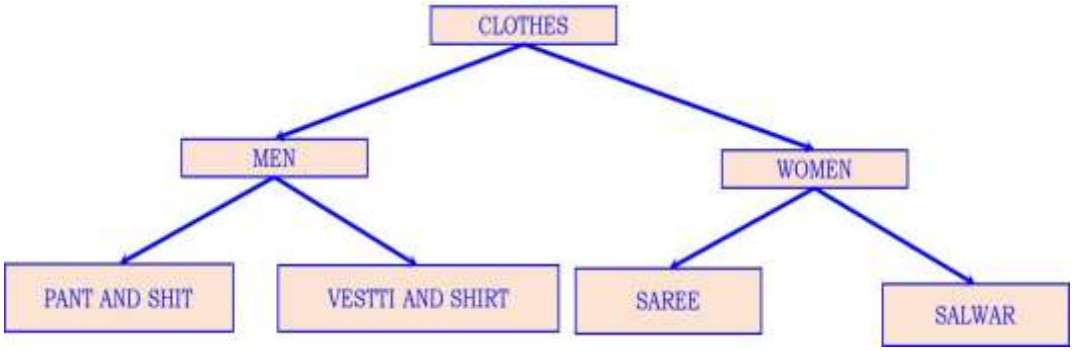
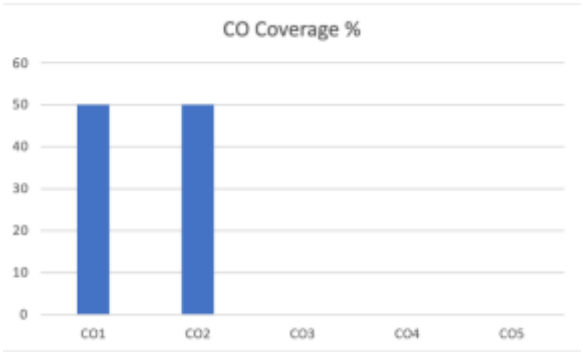
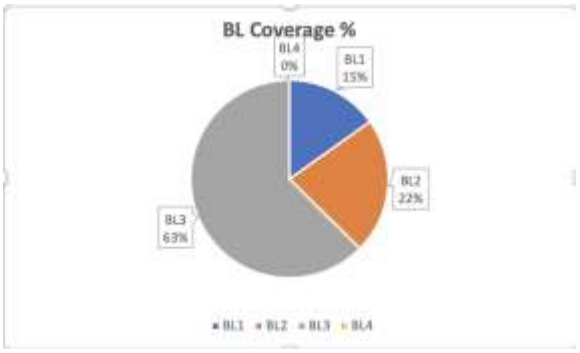
| | a) Features of a Hierarchical Model<br>✔ One-to-many relationship:<br>✔ Parent-Child Relationship<br>✔ Deletion Problem:<br>✔ Pointers<br>✔ Simple and fast traversal because of using tree structure<br>✔ Changes in parent node automatically reflected in child node<br>b)<br>  | | | | | |
| 9) | The DB Enterprise creates new branches in different locations. The manager looks for the new posting, who has the responsibility in the control of data/information available at different locations. Highlight the roles that the person has to perform repeatedly.<br><br>**Ans:**<br>• Install and maintain the performance of database servers.<br>• Develop processes for optimizing database security. Set and maintain database standards.<br>• Manage database access.<br>• Performance tuning of database systems.<br>• Install, upgrade, and manage database applications.<br>• Diagnose and troubleshoot database errors. | **5** | **L3** | **1** | **2** | **3.2.2** |

**Course Outcome (CO) and Bloom's level (BL) Coverage in Questions**




**Approved by the Audit Professor/Course Coordinator**