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**DEPARTMENT: COMPUTER SCIENCE AND ENGINEERING**

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| *Internal Assessment* | **I** | *Academic Year/Semester* | **2023-24 / EVEN** |
| *Course Code and Name* | CST204 DATABASE MANAGEMENT SYSTEMS | *Branch* | **CSE** |
| *Date of Exam* |  | *Duration* | **90 Min** |
| *Starting time* |  | *Max. Marks* | **50** |

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| **PART-A (*Answer all questions, Each carries 5 marks*) Max Marks: 20** | | | | |
| ***Q.No*** |  | ***Marks*** | ***CO*** | ***Level*** |
| **1** | List different categories of database users, highlighting any one important characteristic of each category | **5** | CO1 | L1 |
| **2** | Differentiate between two-tier and three-tier client-server database architecture with the help of neat labelled diagrams. | **5** | CO1 | L2 |
| **3** | Distinguish between the Super key, Candidate key, and Primary key using a real convincing example. | **5** | CO1 | L2 |
| **4** | Define entity integrity and referential integrity constraint. Why is it important? | **5** | CO1 | L1 |

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| **PART-B (*Each question carries 15 marks)* Max Marks: 30** | | | | | |
| **5** | a | Explain three schema architecture with figure. | **6** | C01 | L2 |
| b | A company has the following scenario: There are a set of salespersons. Some of them manage other salespersons. However, a salesperson cannot have more than one manager. A salesperson can be an agent for many customers. A customer is managed by exactly one salesperson. A customer can place any number of orders. An order can be placed by exactly one customer. Each order lists one or more items. An item may be listed in many orders. An item is assembled from different parts and parts can be common for many items. One or more employees assemble an item from parts. A supplier can supply different parts in certain quantities. A part may be supplied by different suppliers.   1. Identify and list entities, suitable attributes, primary keys, foreign keys and relationships to represent the scenario. 2. Draw an ER diagram to model the scenario using min-max notation. | **9** | CO2 | L3 |
| **OR** | | | | | |
| **6** | a | Explain briefly about structured, unstructured and semi structured data. | **6** | C01 | L2 |
| b | Draw an ER diagram based on the following information,   * Manufacturers have a name, which we may assume is unique, an address, and a phone number * Products have a model number and a type. Each product is made by one manufacturer, and different manufacturers may have different products with the same model number. However, you may assume that no manufacturer would have two products with the same model number * Customers are identified by their unique social security number. They have email addresses, and physical addresses. Several customers may live at the same (physical) address, but we assume that no two customers have the same email address * An order has a unique order number, and a date. An order is placed by one customer. For each order, there are one or more products ordered, and there is a quantity for each product on the order. | **9** | CO2 | L3 |
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| **7** | a | Interpret the following ER diagram | **9** | CO2 | L3 |
| b | Study the table given below and write relational algebra expressions for the queries that follow.  EMPLOYEE (ENO, NAME, ADDRESS, DOB, AGE, SALARY, DNAME, CITY)  (a) Names of female employees whose salary is more than 20000.  (b) Salaries of employees from ‘Accounts’ department  (c) Name of Employees located in "Ernakulam" City | **6** | CO3 | L3 |
| **OR** | | | | | |
| **8** | a | Use the standard synthesis procedure to generate to the ER diagram below. Identify primary and foreign keys of the relationship. | **9** | CO2 | L3 |
| b | Study the table given below and write relational algebra expressions for the queries that follow.  STUDENT (ROLLNO, NAME, AGE, GENDER, ADDRESS, ADVISOR\_NAME)  (i) Names of female students  (ii) Names of male students along with adviser's name  (iii) List the name of Female students having age less than 18 | **6** | CO3 | L3 |

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| **Course Outcomes (CO):** |
| **CO 1 :** Summarize and exemplify fundamental nature and characteristics of database systems (Cognitive Knowledge Level: Understand) |
| **CO 2 :** Model real word scenarios given as informal descriptions, using Entity Relationship diagrams. |
| **CO 3 :** Model and design solutions for efficiently representing and querying data using relational model |
| **Bloom’s Taxonomy Level:** |
| L1: Remember, L2: Understand, L3:Apply L4:Analyze |

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|  | **Prepared By**  **(Course Instructor)** | **Verified By**  **(Stream Coordinator)** | **Approved By**  **(HOD/Academic Head)** |
| **Name & Signature** | Prof. Sreedevi R Krishnan | Prof. Simi M S |  |

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**INTERNAL EXAM QUALITY ASSESSMENT FORM**

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| 1 | CO’s assessed in the question paper |  |
| 2 | Blooms taxonomy levels assessed in the question paper |  |
| 3 | Syllabus/units for the test (Modules) |  |
| 4 | Level of question paper as assessed by the faculty: (Tick Appropriate level)  DIFFICULT MODERATELY DIFFICULT EASY | |
| 5 | Marking criteria/scheme of valuation is attached with the question paper. YES / NO | |

**CHECK –LIST**

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| ***Sl No.*** | ***Particulars*** | ***Yes/No*** | | ***Remarks*** |
| **Whether the question paper has the following titles correctly marked:** | | | | |
| 1 | Name of the subject and subject code |  |  | |
| 2 | Date and time of the exam |  |  | |
| 3 | Year and Semester |  |  | |
| 4 | Branch Name |  |  | |
| 5 | Duration of the exam |  |  | |
| **Whether the content of the question paper has the following correctly marked:**  **(Mark ‘NA’ if any of the title is not applicable for the question paper)** | | | | |
| 6 | Format of the question paper |  |  | |
| 7 | Page numbers have been provide in the footer |  |  | |
| 8 | Necessary and sufficient instructions have been provided at the beginning of the question paper |  |  | |
| 9 | Questions have numbered correctly |  |  | |
| 10 | Sub-questions have been numbered correctly |  |  | |
| 11 | Total marks assigned for sub questions tallies with mark allocated for the question |  |  | |
| 12 | Questions have been set for the max. marks |  |  | |
| 13 | Blooms taxonomy against each question have been set correctly taking into account the expected levels |  |  | |
| 14 | Figures are clear in the print-out |  |  | |
| 15 | COs and Knowledge level have been provided at the end of the question paper |  |  | |
| 16 | Grammatical errors have been checked |  |  | |

**CO ASSESSMENT**

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| **CO Assessed** | **CO \_1\_\_\_\_\_** | **CO \_2\_\_\_\_\_** | **CO \_3\_\_\_\_\_** | **CO \_\_\_\_\_\_** | **CO \_\_\_\_\_\_** |
| **Marks** | 26 | 18 | 6 |  |  |
| **Weightage** |  |  |  |  |  |

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| Name and dated signature of the faculty | Sreedevi R Krishnan |
| Name and dated signature of the Stream Coordinator with recommendation |  |
| Name and dated Signature of Academic Head |  |
| Name and dated Signature of Head of Department | Prof Manesh T |