

**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* | 16/03/2024 | *Duration* | **90 Min** |
| *Starting time* | 10:00 to 11:30 AM | *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** | With a help of an example, elaborate weak entity set and strong entity set | **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** | Define Cardinality Ratio, What are the possible cardinality ratios for a binary relationship. | **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 university registrar’s office maintains data about the following entities: (a) courses, including number, title, credits, syllabus, and prerequisites; (b) course  offerings, including course number, year, semester, section number, instructor(s), timings, and classroom; (c) students, including student-id, name,  and program; and (d) instructors, including identification number, name, department, and title. Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Construct an E-R diagram for the registrar’s office. Document all assumptions that you make about the mapping constraints. | **9** | CO2 | L3 |
| **OR** | | | | | |
| **6** | a | Explain briefly about any three types of database end users | **6** | C01 | L2 |
| b | Design an ER diagram for the following scenario: UPS prides itself on having update information on processing and current location of each shipped  item.  To do this, UPS relies on a company wide information system. Shipped items can be characterized by item number(unique),weight,dimensions,insuranceamount,destination and final delivery date.Shipped items are received into ups system at a single retail center. Retail Centers are characterized by their type, unique ID and address. Shipped items make their way to the destination via one or more standard UPS  transportation events. These transportation events are characterized by unique schedule Number, type and delivery route. Model this scenario bv identifying  Entities, Attributes ,Primary Keys, Relationship and Cardinality | **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** | Sumesh Raman |  |  |



**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 | Sumesh C Raman |
| 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 |