Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**Supplementary Examination – June – 2017**

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|  |  | **Semester :** |  |
| **Code :** | **14CS2011** | **Duration :** | **3hrs** |
| **Sub. Name :** | **DATABASE SYSTEMS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| Q. No | Sub Div. | Questions | Marks |
| 1. | a. | Name any five DML commands. | 5 |
| b. | Draw and explain the architecture of database system. | 10 |
|  | c. | List the significant differences between a file-processing system and a DBMS. | 5 |
| (OR) | | | |
| 2. | a. | Illustrate and discuss the steps involved in processing a query with neat diagram. | 10 |
| b. | Explain the TCL and DCL commands with suitable examples. | 10 |
| 3. | a. | Compare and contrast inner joins and outer joins. What are the different types of outer joins? Explain with examples. | 10 |
|  | b. | Given : Employees{Emp\_id, Emp\_name, Department, Salary, Date\_of \_Joining}  Find all employees who earn more than the average salary in their department using correlated subquery. | 5 |
|  | c. | Explain the aggregate functions with suitable examples. | 5 |
| (OR) | | | |
| 4. | a. | Consider the following database and answer the following: Employee(Employee\_id,Employee\_Name,Department\_Id, Date\_of\_Joining, Salary)  Department(Department\_Id,Department\_name,Head\_of\_Department)     * + 1. Write a query to display the name of the employee who is getting highest salary.     2. Write a query to display the average salary of each department.     3. Write a query to display the Employee\_Name, Department\_Name and the Head of the Department.     4. Write a query to display the name of the employees who joined after '01-JAN-16'.     5. Write a query to display the name of the employees which starts with 'J'. | 15 |
|  | b. | Briefly explain how views are helpful in solving complex queries. | 5 |
| 5. | a. | Consider a university database for the scheduling of classrooms for final exams. This database could be modeled as the single entity set exam, with attributes course-name, section-number, room-number, and time. Alternatively, one or more additional entity sets could be defined, along with relationship sets to replace some of the attributes of the exam entity set, as  • course with attributes name, department, and c-number  • section with attributes s-number and enrollment, and dependent as a weak entity set on course  • room with attributes r-number, capacity, and building  Show an E-R diagram illustrating the use of all three additional entities sets listed. | 10 |
|  | b. | Construct appropriate tables for the E-R diagram which you have drawn. | 10 |
| (OR) | | | |
| 6. | a. | Differentiate the process of normalization and denormalization. | 2 |
|  | b. | What is the significance of normalization of database? | 2 |
|  | c. | What are the different normal forms? Which normal form is considered adequate for normal relational database design? | 3 |
|  | d. | What are the insertion, deletion and update anomalies that occur in a database? | 3 |
|  | e. | Explain the 1NF, 2NF and 3 NF with proper examples | 10 |
| 7. | a. | Compute AG+ for the given set? Is AG a super key?  R=(A,B,C,G,H,I)  F=A->B,A->C,CG->H,CG->I,B->H | 10 |
|  | b. | Compute the canonical cover for the following relation  R= {A, B, C, D, E, F}  F= {A🡪 BC  C🡪AD  E🡪 ABC  F🡪CD  CD🡪 BEF  AB 🡪D  } | 10 |
| (OR) | | | |
| 8. | a. | Write a function to get age of the person and print whether the person is eligible for voting. | 4 |
|  | b. | Write a trigger to restrict any updates on a table. | 6 |
|  | c. | Explain about the transaction and its desirable properties in detail with examples. | 10 |
|  | | **Compulsory**: |  |
| 9. |  | Write in detail about various types of indexes in database and how it remains stable during the insertion, deletion or updation process. | 20 |

ALL THE BEST