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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

**End Semester Examination – April / May – 2017**

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

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

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| **Q. No.** | **Sub Div.** | **Questions** | **Marks** |
| 1. | a. | Explain the advantages of DBMS over file management system. | 6 |
| b. | Describe the main functions of a database administrator. | 6 |
| c. | Illustrate the Data ManipulationLanguage(DML) and Data definition Language (DDL) commands with syntax and appropriate examples. | 8 |
| (OR) | | | |
| 2. | a. | Illustrate and discuss the steps involved in processing a query with neat diagram | 14 |
| b. | Discuss the various Set operations with suitable examples. | 6 |
| 3. | a. | Explain the basic structure of SQL Queries. | 6 |
| b. | Consider the Following table Emp(Emp\_id,Name, Dept\_name, Salary) Write SQL statements for the following   1. Find the employee name who is getting lowest salary.   ii. Find the department name which has highest average salary.   1. Find all the department where more than 60 employees are working. 2. Find all the employees whose salary is higher than the average salary of their department. | 8 |
| c. | Discuss the difference between Views and materialized views. | 6 |
| (OR) | | | |
| 4. | a . | Consider the following database and answer the following:  Customer(Cust\_name,Cust\_street,cust\_city)  Cust\_account(account\_number,branch\_name,balance) Loan(loan\_number,branch\_name,amount)  Borrower(cust\_name,loan\_number)  i. Find all the bank customers having a loan, an account, or both at the bank.  ii. Find all customers who have both a loan and an account at the bank. (Union and set membership)  iii. Find all customers who have an account, but no loan at the bank.  iv. Find the number of depositors for each branch.  v. Find only those braanches where the average account balance is more than 50000. | 12 |
| b. | Write short notes on constraints. | 4 |
| c. | What is TCL? What are the command used for control the transction | 4 |
| 5. | a. | Construct an ER model for the Hospital Management System with the following assumptions  In a hospital there are different departments. Patients are treated in these departments by the doctors assigned to patients. Usually each patient is related by a single doctor, but in rare cases they will have two or three. Healthcare assistants will also attend to patients; Every department has many healthcare assistants. Each patient is required to take a variety of drugs during different parts of the day such as morning, evening and night. | 10 |
| b. | List differences between aweak entity set and a strong entity set. | 4 |
| c. | Write short notes on aggregation. | 6 |
| (OR) | | | |
| 6. | a. | Convert the following ER Diagram to relational tables. | 8 |
| b. | i. Create a trigger for update of column salary in the employee table, which ensures that salary cannot be reduced.  ii. Write a trigger to stop the transaction if the salary of the employee entered by the user is below 20000 | 3  3 |
| c. | Give a brief note on cardinality mapping. | 6 |
| **7.** | a. | Why do we need Normalization? Is normalization preferred in today’s scenario? Explain the 1NF, 2NF and 3 NF with proper examples | 12 |
| b. | Compute the canonical cover for the following relation  R= {A, B, C, D, E}  F= {A🡪 D  BC🡪AD  C🡪 B  E🡪A, E🡪D } | 8 |
| (OR) | | | |
| 8. | a. | Write a PL/SQL program to find the given number is Armstrong or not. | 5 |
| b. | Describe the different types of file organization. | 5 |
| c. | Explain the system architecture of Transaction server and describe the functionality of each process in detail. | 10 |
|  | | **Compulsory:** |  |
| 9. | a. | Draw a B + tree of order 5 by inserting the following data  2 14 12 4 22 8 16 26 20 10 38 18 36 24 6 48 28 40 42 32.  After constructing the B-tree delete the following data: (i) delete 36 (ii) delete 32 | 10 |
| b. | Explain about different types Indexing techniques. | 10 |