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

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**End Semester Examination – Nov/Dec – 2018**

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| **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** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Illustrate the core architecture of database system with suitable diagram. | CO1 | 15 |
| b. | Compare and contrast file system with database systems. | CO1 | 5 |
| (OR) | | | | |
| 2. |  | Consider the following database and answer the following: Stud(Serial\_Number, Register\_Number, stud\_Name, Dateofbirth, dept\_name, CGPA)   * + 1. Create the mentioned table (Note: Define Register Number as Primary Key).     2. Display name, cgpa of the students.     3. Display the name of the student who got top CGPA.     4. Display the name of students who are in CSE department.     5. List Toppers in each department in ascending order.   vi. Find the details of students whose name start with ‘s and ends with m’. | CO1 | 20 |
| 3. | a. | Illustrate various applications of Database with suitable real-time example. | CO1 | 5 |
| b. | Distinguish between centralized and Client Server architecture. | CO1 | 5 |
| c. | Recall various constraints enforced in database systems to maintain consistency. Give suitable SQL command line example for constraint definition. | CO1 | 10 |
| (OR) | | | | |
| 4. |  | Consider the following relational database:  *employee (person\_name, street, city) works (person\_name, company\_name, salary) company (company\_name, city) manages (person\_name, manager\_name).*  Each of the following queries give an expression in a relational algebra:   1. Find the name of all employees who work for “Safe and Trust Bank”. 2. Find the names, address and cities of resistance of all employees order by name. 3. Find the names of all employees in the data base who do not work for Safe and Trust bank. 4. List the top three highly paid managers. 5. Create a view for projecting employee details and company details together. Mention the usability of Materialized Views. | CO1 | 20 |
| 5. | a. | Design an ER Diagram for keeping track of the exploits of your favorite sports team. You should store the matches played, the scores in each match, the players in each match and the individual player statistics, Summary statistics should be modeled as derived attributes. | CO3 | 15 |
| b. | Write any five naming conversions used for ER schema diagram. | CO3 | 5 |
| (OR) | | | | |
| 6. | a. | Remove extraneous attributes from a set F of functional dependencies for the relation schema R(A,B,C,D,E).  AB🡪 CD  AB🡪 D  A🡪E  E🡪C | CO3 | 5 |
|  | b. | Write the properties to be stratified while finding canonical cover of F. Compute the canonical cover for the functional dependencies given relation schema R = {A,B,C,D,E,F,G,H}  F = {AC→G,  D→EG,  BC→D,  CG→BD,  ACD→B,  CE→AG} | CO3 | 15 |
| 7. | a. | What are the insertion, deletion and update anomalies that occur in a database? | CO3 | 5 |
| b. | Explain the 1NF, 2NF and 3NF with proper examples. | CO3 | 15 |
| (OR) | | | | |
| 8. | a. | Explain various hashing techniques. | CO2 | 10 |
| b. | Write about File Organization and Organization of Records in File. | CO2 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. |  | Consider the Following Scenario. Mr.X is Transferring Rs.10000 from his account to Mr.Y’s Account through net banking. Based on Given scenario. Illustrate various states involved in transaction processing by Highlighting the importance of state change and How state change will occur during the network failure? When Mr.X initiates the transaction but Mr.Y doesn’t receive that money. | CO2 | 20 |