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 – Nov/Dec – 2016**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14CS2011** | **Duration :** | **3hrs** |
| **Sub. Name :** | **DATABASE MANAGEMENT SYSTEMS** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Explain the basic structure of SQL Queries with an example. | CO2 | 6 |
| b. | Discuss the need for integrity constraints with examples. | CO2 | 6 |
|  | **c.** | List the significant differences between a file-processing system and a DBMS. | CO1 | 8 |
| (OR) | | | | |
| 2. | a. | Describe the database system architecture with a neat diagram. | CO1 | 14 |
| b. | Write short notes on the various views of data. | CO1 | 6 |
| 3. | a. | What are the different types of outer joins? Explain with examples. | CO2 | 6 |
|  | b. | List the aggregate functions. Illustrate with syntax and example. | CO2 | 10 |
|  | c. | State the difference between simple views and complex views.Whether views are updatable or not? Discuss. | CO2 | 4 |
| (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 lowest salary.     2. Find all employees who earn more than the average salary in their department using correlated subquery.     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'. | CO2 | 10 |
|  | b. | What is an inline view?How do you perform Top-N-Analysis using inline view? | CO2 | 5 |
|  | c. | Give the syntax for TCL and DCL commands. | CO2 | 5 |
|  |  |  |  |  |
| 5. | a. | Suppose you are given the following requirements for a simple database for the National Hockey League (NHL):   * the NHL has many teams, * each team has a name, a city, a coach, a captain, and a set of players, * each player belongs to only one team, * each player has a name, a position (such as left wing or goalie), a skill level, and a set of injury records, * a team captain is also a player, * a game is played between two teams (referred to as host\_team and guest\_team) and has a date (such as May 11th, 1999) and a score (such as 4 to 2).   Construct a clean and concise ER diagram for the NHL database. | CO1 | 12 |
|  | b. | Construct appropriate tables for the E-R diagram which you have drawn. | CO1 | 8 |
| (OR) | | | | |
| 6. | a. | Differentiate the process of normalization and denormalization.What is the significance of normalization of database? | CO1 | 4 |
|  | b. | What are the different types of anomalies that occur in a database? Give example. | CO1 | 4 |
|  | c. | What are the different normal forms? Which normal form is considered adequate for normal relational database design?Explain the 1NF, 2NF and 3 NF with proper examples. | CO1 | 12 |
| 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 | CO1 | 6 |
|  | b. | Compute F closure (F+) for the following relational schema and functional dependencies  *R = (A, B, C, G, H, I) F =* { *A* →*B  A* →*C  CG* →*H  CG* →*I  B* →*H*  } | CO1 | 10 |
|  | c | Consider the following relation R=(G,H,C,D,E).R holds following functional dependencies.  Keys: G,H  F{G🡪C,H🡪D,GH🡪E} .  Check whether R is in 2NF.  If not convert it into 2NF. | CO1 | 4 |
| (OR) | | | | |
| 8. | a. | Write a function to get age of the person and print whether the person is eligible for voting. | CO3 | 4 |
|  | b. | Write a trigger to restrict any updates on a table. | CO3 | 4 |
|  | c. | Describe the architecture of a transaction server. | CO3 | 12 |
|  |  |  |  |  |
|  | | **Compulsory:** |  |  |
| 9. | a. | Write in detail about B+ tree indexes in database and illustrate how it remains stable during the insertion, deletion or updation process | CO3 | 12 |
|  | b. | Draw the structure of the slotted page structure. | CO3 | 4 |
|  | c. | Compare and contrast dense and sparse indices. | CO3 | 4 |

ALL THE BEST