Hall Ticket No | | | | | | | | | | | Question Paper Code: ACSB26

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
(Dundigal-500043, Hyderabad)

B.Tech VII SEMESTER END EXAMINATIONS (REGULAR) - FEBRUARY 2022
Regulation: R18

ADVANCED DATABASES

Time: 3 Hours **(CSE|IT)** **Max Marks: 70**

Answer FIVE Questions choosing ONE question from each module
(NOTE: Provision is given to answer TWO questions from any ONE module)
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

MODULE – I

1. (a) State the principles of database design. What is integrity in database management system? **[7M]**

   (b) Given the relational schema: STUDENT(Name, Subject, Supervisor) PROFESSOR(Name, Subject) COURSE(Title, Professor) EXAM(StudentName, CourseTitle) Describe the triggers that manage the following integrity constraints (business rules):

   i) Each student must work in the same area as his or her supervisor.

   ii) Each student must have taken at least three courses in the subject of his or her supervisor.
   iii) Each student must have taken the exam for the course taught by his or her supervisor. **[7M]**

2. (a) What are active rules? Discuss the different types of active databases and how trigger in an oracle systems are declared. **[7M]**

   (b) A family tree represents the structure of a family. Show how the information of a family tree can be represented by means of a relational database, in which only the male line or only the female line is represented. **[7M]**

MODULE – II

3. (a) What is temporal database? Explain with an example how the insert, delete and update commands are implemented in temporal database. **[7M]**

   (b) Create the tables “Employee” and “Employee Lifecycle”? Give the name of current employees who do not work currently in any department. **[7M]**

4. (a) Write the syntax and semantics of active databases. Explain how the active rules are specified in Oracle. **[7M]**

   (b) Write the SQL query for finding the name(s) of the employee(s) who had the less salary on 1/1/2010. Make your own tables. **[7M]**

MODULE – III

5. (a) Explain in detail how the recursive querries can be specified in SQL. **[7M]**

   (b) Create the tables of Part_Cost (BASIC-PART, SUPPLIER, COST, TIME), Assembly (PART, SUBPART, QTY) . Write the query for ”find the parts using ’top_tube’” using recursive queries. **[7M]**

6. (a) What are the different ways to optimize a SQL query for minimum impact on database performance. **[7M]**

   (b) Create the tables of student (Name, Major, Year), Took (Name, Course, Grade) . Write the query for "Find the senior students who are NOT missing any requirement" using double negation. **[7M]**

MODULE – IV

7. (a) Explain the following indexing methods with an example:
   i) Overview of B-Tree indexes
   ii) Overview of Bitmap indexes
   iii) Overview of functions bases indexes. **[7M]**

   (b) What is spatial database? Explain the methods of mining spatial databases. Why spatial access methods are needed? **[7M]**.

8. (a) Write about multimedia databases. How data is stored and indexed in multimedia databases? Explain in detail. **[7M]**

   (b) Consider the following table: Country(name: String, pop: number, boundary: POLYGON) Where for each country, we record its name, population, and boundary. Also assume that country name is a primary key. Write an SQL-like query language. Find all the names of countries that are neighbors of the United Kingdom (UK). **[7M]**

MODULE – V

9. (a) Explain functional dependencies in relational database and lattice-based approaches. **[7M]**

   (b) Explain the following with suitable examples:
   i) Probabilistic databases and reasoning.
   ii) Converting of Probabilistic Tuples to annotated Tuples **[7M]**

10. (a) Mention the problems of location dependent data distribution. How does it affect the data integrity and data consistency? Explain in detail. **[7M]**

    (b) Create a table using the attributes (File, Person, LB, UB, and Salary). Find all pictures of people making over $100,000 per year, where the pictures correctly identify the person in question with over 70% probability. **[7M]**

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