INSTITUTE OF AERONAUTICAL ENGINEERING

(AUTONOMOUS)

Code No: **BCS005**

MODEL QUESTION PAPER - II

M. Tech II Semester Regular Examinations, August 2017

ADVANCED DATABASE MANAGEMENT SYSTEM

(COMPUTER SCIENCE AND ENGINEERING)

Time: 3 hours Max. Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT-I

1. (a) Discuss in detail about entity relationship model and relational model? Consider the following information about a university database and create tables and relations for following entities.
   i) Professors have an SSN, a name, an age, a rank, and a research specialty
   ii) Graduate students have an SSN, a name, an age, and a degree program (e.g., M.S. or Ph.D.) [7M]
   (b) Explain the integrity issues in database design and give brief explanation of integrity constraints and create tables by using integrity constraints for
   i) Employee (empno,name,office,age)
   ii) Books(isbn,title,authors,publisher) [4M]
   iii) Loan(empno, isbn,date).
   (c) Describe about structured data types and its operations in brief? [3M]
2. (a) Discuss the concepts of encapsulation, abstract data types and inheritance? Specify the data types for
   i) employee(name,age,designation,salary,deptno)
   ii) department (deptno, deptname, address) [7M]
   (b) State data definition language commands and data manipulation language commands? Write queries for following entities with attributes
   Emp (eid: integer, ename: string, age: integer, salary: real)
   Works(eid: integer, did: integer, pcttime: integer)
   Dept(did: integer, dname: string, budget: real, managerid: integer)
   i) Write an SQL statement to add John Doe as an employee with eid = 101, age = 32 and salary = 15, 000.
   ii) Write an SQL statement to give every employee a 10 percent raise.
   iii) Write an SQL statement to delete the Toy department. [4M]
   (C) Explain briefly about enhanced data model? [3M]

UNIT-II

3. (a) Explain in detail the parallel databases and architecture of parallel databases? [8M]
   (b) State and differentiate the following partitioning techniques.
   i) Hash partitioning
   ii) Range partitioning [6M]
4. (a) Summarize the following operations that are parallelized using data portioning?
   i) Scanning
   ii) Sorting
   iii) join [7M]
   (b) Discuss how parallelism could be used in query processing and relational operation executions? [7M]

UNIT-III

5. (a) What is meant by a distributed database management system and discuss the motivation in providing such a system? [7M]
   (b) Discuss about distributed database access primitives and Integrity constraints in distributed databases. Create a table for reservation system with integrity constraints for any attribute and violate the insertion. [4M]
   (c) Explain distribution transparency for read-only and update applications in distributed database management system? [3M]
6. (a) Explain component architecture for a distributed database management system? [7M]
   (b) Discriminate homogenous and heterogeneous distributed database management system? [7M]

UNIT-IV

7. (a) Discuss about the following in detail with examples
      i) distributed grouping
      ii) aggregation functions
      iii) parametric queries [7M]
   (b) Explain about the design of database fragmentation in detail for distributed database management system? [4M]
   (c) Describe fragments allocation in the design of database fragmentation? [3M]
8. (a) Explain briefly about Equivalence of transformations for queries in distributed query processing? [7M]
   (b) Discuss the framework for distributed database design and database fragmentation? [4M]
   (c) Describe the process of transforming global queries into fragment queries? [3M]

UNIT-V

9. (a) Describe about Querying XML data and efficient evaluation of XML queries? [7M]
   (b) State the difference between query optimization and cost based query optimization? [4M]
   (c) Explain about web search engine and managing text in a DBMS? [3M]
10. (a) Explain about join queries in a distributed DBMS and write queries for following:
      i) Write a query to find the addresses (location_id, street_address, city, country_name) of all the departments.
      ii) Write a query to find the names (first_name, last name), department ID and name of all the employees.
      iii) Write a query to get the department name and number of employees in the department. [7M]
   (b) State the key difference between database management system and information retrieval systems? [4M]
   (c) Discuss about indexing for text search in information retrieval? [3M]