

II B. Tech II Semester Supplementary Examinations, December - 2023**DATABASE MANAGEMENT SYSTEMS**

(Common to CSE, CST, CSE(CS), CSE(IOTCSIBCT), CSE(CSBS), CSE(IOT), CS)

Time: 3 hours**Max. Marks: 70**Answer any **FIVE** Questions, each Question from each unitAll Questions carry **Equal** Marks

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**UNIT-I**

- 1 a) Define Schema. Explain Three level schema architecture in DBMS. [7M]
- b) How does DBMS provide data abstraction? Explain the concept of data independence? [7M]

**Or**

- 2 a) Mention any seven differences between Database vs File System. [7M]
- b) What is Data Base Administrator? Discuss the functionalities of DBA. [7M]

**UNIT-II**

- 3 a) Write SQL Queries for following set of tables: [10M]  
 EMPLOYEE (EmpNo, EName, DoB, Address, Gender, Salary, DNo)  
 DEPARTMENT (DNo, Dname, ManagerEmpNo, MnagerStartDate).  
 i) Display all employees in Department named 'Computer Science'.  
 ii) Display the name of highest salary paid 'male' employee.  
 iii) Which employee is oldest manger in company?  
 iv) Display the name of department of the employee 'SRINIVAS'  
 v) Display the Age of 'female' employees  
 b) Explain the following: i) Key constraints ii) Integrity constraints. [4M]

**Or**

- 4 a) Write SQL statements for the following: [10M]  
 Sailors(sid, sname, rating, age)  
 Boats(bid, bname, color)  
 Reserves(sid, bid, day)  
 i) Find the sids of all sailors who have reserved red boats but not green boats.  
 ii) Find all sids of sailors who have a rating of 7 or reserved boat 101.  
 iii) Count the number of different sailor names.  
 iv) Find the names of sailors who are older than the oldest sailor with a rating of 10.  
 v) Find the age of the youngest sailor for each rating level.  
 b) Write a short note on date functions and numeric functions. [4M]

## UNIT-III

- 5 a) Construct an ER diagram for university registrar's office. The office maintains data about each class, including the instructor, the enrolment and the time and place of the class meetings. For each student class pair a grade is recorded. Determine the entities and relationships. [7M]
- b) Explain the class hierarchy with ER Diagram which have to cover overlap constraints and covering constraints. [7M]

**Or**

- 6 a) Explain the Conceptual Design with the ER Model. [7M]
- b) Discuss and distinguish between Aggregations versus Ternary Relationships. [7M]

## UNIT-IV

- 7 a) What is the importance of dependency preservation during decomposition? How to achieve it. Explain insertion, deletion, and modification anomalies. [7M]
- b) What is a normal form? Explain about various normal forms with examples. [7M]

**Or**

- 8 a) Explain the purpose of normalization and schema refinement. [7M]
- b) Is the decomposition in 4NF always dependency preserving and lossless? Explain with an example. [7M]

## UNIT-V

- 9 a) Explain the ARIES recovery method. When does a system recover from a crash? In what order must a transaction be undone and redone? Why is this order important? [7M]
- b) Write and explain the ACID properties of Transactional database system with a suitable example. [7M]

**Or**

- 10 a) Explain in detail about B+ trees. [7M]
- b) Explain about Open hashing? Compare dynamic hashing with static hashing. [7M]