BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)

Computer Science & Business Systems

B. Tech. Sem - IV :SUMMER : 2023

SUBJECT : DATABASE MANAGEMENT SYSTEMS

Day : Saturday | Time : 10:00 AM-01:00 PM

Date : 27-05-2023 | S-24155-2023 | Max. Marks : 60

N.B.

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.

Q.1 What is a Database Management System? Explain its advantages over File Management System. **(10)**

OR

Explain with a neat diagram what is View of data. Explain physical & logical data independence.

Q.2 Write SQL queries for the following set of tables: **(10)**

Employee (emp_no, name, dob, address, gender, salary, dnumber)
Department (dno, dname, manager_emp_no, managerstartdate)

i) Display the age of 'male' employees.
ii) Display all employees in department named 'Marketing'.
iii) Display the name of highest salary paid 'female' employee.
iv) Which employee is oldest manager in company.
v) Display the name of department of the employee 'Smith'.

OR

Explain Unary & Binary operations in Relational Algebra using examples. Also explain the constraints to be followed while performing those operations.

Q.3 Explain the significance and types of Functional Dependences. Explain difference between 3NF and BCNF. Justify BCNF is stricter than 3NF. **(10)**

OR

What are update anomalies? Explain the need and significance of normalization.

Q.4 Explain how static hashing is performed in DBMS. Also explain different methods to handle bucket overflow. **(10)**

OR

a) Explain different steps in query processing with a neat block diagram.
b) Explain significance of sorting in DBMS. Explain in detail N-way merge sort with example.

Q.5 What is 2-Phase locking protocol? Compare 2P-Phase locking protocol and strict 2-Phase locking protocol. **(10)**

OR

Write a note on
i) Database recovery
ii) Shadow paging

Q.6 **a)** Compare RDBMS & OODBMS **(10)**
b) Write a note on Data Warehousing and Data Mining

OR

Write a note on
i) Web database
ii) Distributed database

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