

CBCS SCHEME



USN

Library

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16/17MCA23

Second Semester MCA Degree Examination, June/July 2019 Database Management System

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. Explain the characteristics of database approach. (08 Marks)
- b. Explain 3 schema architecture and data independence. (08 Marks)

OR

- 2 a. Explain difference types of cardinality ratio for binary relationship with example for each. (08 Marks)
- b. Define:
 - i) Entity
 - ii) Attribute
 - iii) Entity types. (08 Marks)

Module-2

- 3 a. Define the term Domain with example. (02 Marks)
- b. Define entity integrity and Referential integrity constraint. (04 Marks)
- c. Discuss the various update operation on relation and the type of integrity constraints that must be checked for each update operation. (10 Marks)

OR

- 4 a. Explain the following relational algebra operations with example for each.
 - i) Join
 - ii) Divisions
 - iii) select
 - iv) project. (08 Marks)
- b. Employee (ssn, name, DOB, salary, Dno)
Department (Dno, Dname, mgrssn)
Solve the following query using relational algebra
 - i) Retrieve name, salary of all employee working for department number 5
 - ii) Retrieve name and DOB of all employee who work for , 'Research department'
 - iii) Retrieve the number of employee in each dept and their average salary.
 - iv) List all sup names and also name of the department they manage. (08 Marks)

Module-3

- 5 a. Explain with an example the substring pattern matching in SQL. (02 Marks)
- b. Define orderby, groupby and having with example. (06 Marks)
- c. Explain aggregate functions in SQL. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

- 6 a. Explain the following commands in SQL i) Drop ii) Create iii) Alter iv) Update
With the syntax and example for each. (08 Marks)
- b. Consider the following schema
Employee (Ename, ssn, Bdate, sex, salary, Dno)
department (Dnum, Dname, mgr_ssn)
works_on (Essn, Pno, hr)
Write SQL Queries for the following :
- Retrieve ssn of all emp who work on project num 1, 2 and 3
 - Select all employee whose name starts with A
 - Retrieve all Emp in department 5 whose salary is between 30,000 and 40,000.
 - Retrieve the name of all Employee who do not have Bdate. (08 Marks)

Module-4

- 7 a. Explain informal design guidelines for relation schemas. (10 Marks)
- b. Write a note on triggers. (06 Marks)

OR

- 8 a. Explain update anomalies with example. (06 Marks)
- b. Define functional dependency. Explain 1NF, 2NF, 3NF and BCNF with example. (10 Marks)

Module-5

- 9 a. Explain the shadow copy techniques for atomicity and durability. (08 Marks)
- b. Explain the following :
- Conflict serializability
 - View serializability. (08 Marks)

OR

- 10 a. Write a note on Deadlock detection and Recovery. (08 Marks)
- b. Explain various types of failure that may occur in a system. (04 Marks)
- c. Explain different types of storage media. (04 Marks)

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