C968

Total Pages : 3   Roll No. ....

MCA-13/M SC (IT)-14

Advanced Database Management System

Master of Computer Applications/
Master of Science in Information Technology
(MCA/MSc.IT-11/12/16/17)

Fourth Semester Examination, 2022 (June)

Time : 2 Hours]   **Max. Marks : 80**

Note : This paper is of Eighty (80) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

SECTION–A
(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Twenty (20) marks each. Learners are required to answer any Two (02) questions only.

(2×20=40)

1. (a) Describe any four Codd's rules/laws of RDBMS.   10

   (b) Explain Referential Integrity constraint with suitable example.   10

2. Draw an ER diagram for Uttarakhand Open University system covering all the functionalities and also derive corresponding relational schema. Assumptions can be made wherever necessary. However, state them. 20

3. (a) Consider following Schema Employee (ENO, ENAME, Department, Designation, DOJ, Salary, Dept_Location) and solve the following queries. 10

    (i) List the employees having Designation as '"Manager" and .Dept_Location as "Mumbat"

    (ii) Set the salary as Rs. 50,000/- having Designation as "Project Leader"

    (iii) List ENO, ENAME, Salary of employees having Salary between Rs. 20,000/- to Rs.30,000/-

    (iv) List Ename of employees having 2nd alphabet in the name as "A".

  (b) What is a transaction? Briefly describe the properties of the transactions. 10

4. What do you mean by the term Transaction? Briefly describe the ACID properties of the transaction. Classify that which problem is caused by the violation of which property of transaction in an concurrent environment. 20

5. Write notes on :

  (a) Encryption. 6

  (b) Multi-version concurrency control techniques. 6

  (c) Functional dependencies. 10

SECTION–B

(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Ten (10) marks each. Learners are required to answer any Four (04) questions only.   (4×10=40)

1. Why do you normalize a database? Explain.

2. Explain join concept of SQL with its types.

3. Discuss the main characteristic of the database approach and how it differs from traditional file system.

4. Verify the statement, "Any relation in BCNF is in 3NF but converse is not true." Give suitable example.

5. What is an outer join? Discuss the different types of outer joins with the help of example.

6. What is data integrity? Does data integrity have any relationship with data security? Justify your answer with the help of example and diagram.

7. Explain discretionary access control based on grant and revoking privilege.

8. Explain database security. Describe different database security levels in detail.

———————