Total No. of Printed Pages : 4 Roll No.....

MCA-13/M.Sc(IT)-14
ADVANCED DATABASE MANAGEMENT SYSTEM

Master of Science in Information Technology

(MCA/MSc.IT-11/12/16/17)

Fourth Semester, Examination-2020

Time Allowed : 2 Hours Maximum Marks : 80

Note : This paper is of Eighty (80) marks divided into Two (02) sections A and B. Attempt the question 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. What are the characteristic of SQL? Write down the procedure of creating a SQL Function. Give an example?
2. Explain the architecture for a database system. How 3-tier architecture is more beneficial over 2-tier architecture? Explain with proper example.
3. What are the different SQL data types? Write a program in SQL that demonstrate Declaring, Defining and Invoking a simple SQL function that computes and returns the maximum of two values.
4. What is ER diagram? Draw E-R diagram for any of the following two organization viz.
   (i) Public Library
   (ii) Hospital, after determining the entities of interest and the relationships that exist between these entities.
5. What is Relational Algebra? Define the five basic operators of relational algebra with an example each.

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. What is normalization? Explain the difference between 1NF and 2NF.

2. Explain the concept of generalization and aggregation in E-R diagrams. Give one example for each one of them.

3. Express the following queries in SQL assume that the data is stored in EMPLOYEE table with relevant fields.

   Display name, job, salary, and hire date of employee who are hired between May 10, 2005 and December 20, 2010. Order the query in ascending order of hire date.

4. Explain the terms primary key, candidate key and foreign key.

5. What is functional Dependency? Explain six inference rules for functional dependencies.

6. What is concurrency control? Explain concurrency control based on time stamp.

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

8. Explain Join, Union and Intersection operation of SQL with the help of example.

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