

816

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Roll No.

MCA-13/M.SC (IT)-14

Advanced Database Management System

Master of Computer Application /Master of Science in
Information Technology
(MCA/M.Sc.IT-11/12/16/17)
Examination 2021 (Winter)

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 x 20=40)

Q.1 a) What are different data types of SQL? Explain with example.

10

P.T.O.

- b) Describe Hierarchical Data Model with Suitable example. 10
- Q.2 "Redundancy is the backbone of reliability therefore, a reliable database system should not attempt normalization beyond 3NF." Comment on the above statement. Give reasons in support of or against the above statement. Use an example to justify your reasoning.
- Q.3 (a) What is Normalization? Explain the types of normal form with the help of example. 10
- (b) Explain the use of two phase locking techniques for concurrency control. 10
- Q.4 a) What is database security? Explain the 5 key steps that help to ensure database security. 10
- b) Discuss the different possible states of a transaction with the help of a diagram 10
- Q.5 Write short notes on :
- a. Relational Algebra 6
- b. SQL operators 6
- c. Normalization 8

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 x 10=40)

- Q.1 Define a view. How is it different from a table? Write the SQL syntax for creating a view.
- Q.2 Differentiate between the following:
- (i) Weak Entity and Strong Entity
 - (ii) ER Diagram and flowchart
- Q.3 What are the advantages of normalized relations over the un-normalized relations?
- Q.4 Differentiate among candidate key, primary key, super key and foreign key.
- Q.5 What is data integrity? Explain the types of integrity constraints.

P.T.O.

- Q.6 Draw E-R diagram for library management system. The library should maintain the data about the staff, student and books.
- Q.7 What is Functional Dependency? Explain single-valued dependency with an example.
- Q.8 Discuss the key control measures that are used to provide security to data in databases.
