

MCA–13/M.Sc.(IT)–14

Advanced Database Management System

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

Fourth Semester, Examination, 2018

Time : 3 Hours

Max. Marks : 80

Note : This paper is of **eighty (80)** marks containing **three (03)** Sections A, B and C. Learners are required to attempt the questions contained in these Sections according to the detailed instructions given therein.

Section–A

(Long Answer Type Questions)

Note : Section ‘A’ contains four (04) long answer type questions of nineteen (19) marks each. Learners are required to answer *two* (02) questions only.

1. Why normalization process is necessary for a good database design ? Discuss in detail the Boyce-Codd Normal Form with suitable example.
2. What are the steps involved in query processing ? Explain how queries are optimized with an example.
3. Explain Relational Data Model with its features and Relational Constraints.

4. What is meant by database security ? Discuss the various security issues in detail.

Section–B

(Short Answer Type Questions)

Note : Section ‘B’ contains eight (08) short answer type questions of eight (08) marks each. Learners are required to answer *four* (04) questions only.

1. Explain E-R Model.
2. Write a note on functional dependency with examples.
3. Write SQL syntax for the following :
 - (a) INSERT
 - (b) CREATE TABLE
 - (c) DELETE
 - (d) SELECT
4. Describe Normalization and its need.
5. What are the desirable properties of transaction ?
6. Define security issues and role of Encryption in ensuring security.
7. What are Relational Constraints ?
8. Diagrammatically discuss Architecture of DBMS.

Section–C

(Objective Type Questions)

Note : Section ‘C’ contains ten (10) objective type questions of one (01) mark each. All the questions of this Section are compulsory.

1. Relational Algebra is a _____ query language.
 - (a) Relational
 - (b) Structural
 - (c) Procedural
 - (d) Fundamental

2. 'AS' clause used in SQL for :
 - (a) Selection operation
 - (b) Rename operation
 - (c) Join operation
 - (d) Projection operation
3. The database schema is written in :
 - (a) HLL
 - (b) DML
 - (c) DDL
 - (d) DCL
4. In any relation if every non-key attribute is functionally dependent on the primary key, then the relation will be in :
 - (a) 1NF
 - (b) 2NF
 - (c) 3NF
 - (d) BCNF
5. We got the decomposition of R into R_1 (P, Q) and R_2 (R, S) from schema R (P, Q, R, S) consisting the following functional dependencies $P \rightarrow Q$ and $R \rightarrow S$, then decomposition is :
 - (a) dependency preserving and lossless join
 - (b) Lossless join but not dependency preserving
 - (c) Dependency preserving but not lossless join
 - (d) Not dependency preserving and not lossless join

6. A _____ is a special kind of a store procedure that executes in response to certain action on the table like insertion, deletion or updation of data.
 - (a) Procedures
 - (b) Triggers
 - (c) Functions
 - (d) None of the mentioned
7. A transaction completes its execution is said to be :
 - (a) Committed
 - (b) Aborted
 - (c) Rolled back
 - (d) Failed
8. Domain constraints, functional dependency and referential integrity are special forms of :
 - (a) Foreign key
 - (b) Primary key
 - (c) Assertion
 - (d) Referential constraint
9. ODBC stands for :
 - (a) Object Database Connectivity
 - (b) Oral Database Connectivity
 - (c) Oracle Database Connectivity
 - (d) Open Database Connectivity
10. For a weak entity set to be meaningful, it must be associated with another entity set, called the :
 - (a) Identifying set
 - (b) Owner set
 - (c) Neighbour set
 - (d) Strong entity set