

## **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