

(i) Printed Pages : 4

Roll No. ....

(ii) Questions : 9

Sub. Code :

8	7	1	1
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Exam. Code :

1	2	1	9
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PGDCA 1<sup>st</sup> Semester

(2123)

## DATABASE MANAGEMENT SYSTEM

Paper : PGD-1103

Time Allowed : Three Hours]

[Maximum Marks : 60

**Note :—** Candidates are required to attempt **five** questions in all, including Question No. 9 which is compulsory. Attempt remaining **four** questions by selecting **one** question from each Section.

### SECTION—A

1. (a) Explain with a diagram the 3-level architecture of a database system. 6
- (b) Discuss the features and structure of Distributed Databases. 6
2. (a) What are the merits of database approach over the traditional file management approach ? 6

(b) Briefly explain with a suitable example, the following with respect to Relational Data Model :

(i) Relation

(ii) Tuple

(iii) Cardinality

(iv) Degree

(v) Primary Key

(vi) Attribute.

6

### SECTION—B

3. (a) What is Relational Algebra ? Explain with an example the following set operations :

(i) Union

(ii) Intersect

(iii) Project

(iv) Cartesian Product

(v) Difference.

6

(b) Discuss log base recovery.

6

4. (a) Why is it required to normalise any database ? Explain 1NF and 2NF. Discuss functional dependency, multivalued and transitive dependencies.

6



- (b) What is meant by database security ? Why is it important and discuss the common threats and challenges to a database ? 6

### SECTION—C

5. Write the SQL commands to do the following by taking suitable examples :
- (i) Conditional retrieval of rows
  - (ii) Matching a pattern from a table
  - (iii) Deleting rows from a table. 12
6. Explain the following in SQL with syntax and examples :
- (i) Character functions
  - (ii) Group functions. 12

### SECTION—D

7. Define a view. Explain with syntax the commands to create and alter views with a suitable example. 12
8. Differentiate between :
- (a) Union and Minus operator
  - (b) COMMIT and ROLLBACK
  - (c) Outer Join and Self-Join. 12

**(Compulsory Question)**

9. (a) Define a Transaction ?

(b) Who is a DBA ?

(c) What is Relational Calculus ?

(d) What are the two types of Data Independence ?

(e) How is BCNF different from 3NF ?

(f) What are checkpoints ?

6×2=12