

Roll No.

D-985

**M. A./M. Sc. (Fourth Semester) (Main/ATKT)
EXAMINATION, May-June, 2020**

MATHEMATICS

(Optional)

Paper Third (A)

(Fundamental of Computer Science)

(Operating System and Database Management System)

Time : Three Hours] [Maximum Marks : 70

Note : Attempt all Sections as directed.

Section—A

1 each

(Objective/Multiple Choice Questions)

Note : Attempt all questions.

Choose the correct answer :

- The term is used to refer to a row.
 - Attribute
 - Tuple
 - Field
 - Instance
- A collection of related data :
 - Information

- Valuable information
 - Database
 - Metadata
- Which of the following is a fundamental operation in relational algebra ?
 - Set intersection
 - Natural join
 - Assignment
 - None of the mentioned
 - Which of the following is the comparison operator in tuple relational calculus ?
 - \Rightarrow
 - $=$
 - \in
 - All of the mentioned
 - Which one of the following is used to define the structure of the relation, deleting relations and relating schemas ?
 - DML (Data Manipulation Language)
 - DDL (Data Definition Language)
 - Query
 - Relational Schema
 - In the normal form a composite attribute is converted to individual attributes.
 - First
 - Second
 - Third
 - Fourth

P. T. O.

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7. To access the services of operating system the interface is provided by the
 - (a) System calls
 - (b) API
 - (c) Library
 - (d) Assembly instructions
8. The system which allows only one process execution at a time is called
 - (a) Uniprogramming system
 - (b) Uniprocessing system
 - (c) Unitasking system
 - (d) None of the mentioned
9. If one or more devices use a common set of wires to communicate with the computer system, the connection is called :
 - (a) CPU
 - (b) Monitor
 - (c) Wirefull
 - (d) Bus
10. In distributed system each processor has its own :
 - (a) local memory
 - (b) clock
 - (c) both local memory and clock
 - (d) None of the mentioned

Section—B

2 each

(Very Short Answer Type Questions)

Note : Attempt all questions in 2-3 sentences.

1. Define database administrator.

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2. Define Network Data Model.
3. Write name of fundamental operation of relational algebra.
4. Define relational calculus.
5. What is normalization ?
6. Define data definition language (DDL) in SQL.
7. What is operating system ?
8. What is processor management ?
9. Write any *two* feature of distributed system.
10. Define input/output management.

Section—C

3 each

(Short Answer Type Questions)

Note : Attempt all questions in 75 words each.

1. Write advantages of DBMS.
2. Write a short note on relational algebra.
3. Explain integrity constraints.
4. What are the main functions of operating system ?
5. Explain network system.

Section—D

? each

(Long Answer Type Questions)

Note : Attempt any *five* questions. Write answer in 150 words each.

1. Explain architecture of database system.
2. Explain relational calculus in detail.
3. How can we obtain Boyce Codd normal form ? Compare.
4. Write a short note on memory management.
5. Explain concurrency and security.
6. What is process ? Explain process control block (PCB).
7. Explain the role of database administrator.
8. Explain different language of SQL.

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