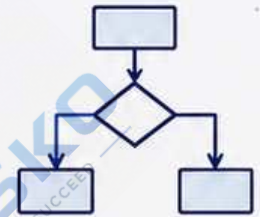


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Question Bank



Data Structure & RDBMS

Unit I - Data Structure and Arrays

● Answers in one or two lines (1 mark questions)

1. Define Data Structure.
2. What is a primitive data structure?
3. What is a non-primitive data structure?
4. What is a linear data structure?
5. What is a non-linear data structure?
6. Name any two primitive data structures.
7. Name any two non-primitive data structures.
8. Define an array.
9. What is array traversal?
10. What is array insertion?
11. What is array deletion?
12. What is the memory representation of an array?
13. What is an index in an array?
14. What is the first index of an array in C?
15. What is a one-dimensional array?
16. What is a two-dimensional array?
17. Which data structure stores homogeneous elements?
18. What is the size of an array?
19. Name any three operations performed on arrays.
20. Which data structure stores data in contiguous memory locations?

● Short Answer Questions (3 marks questions)

1. Explain the concept of a data structure.
2. Explain the types of data structures with examples.
3. Differentiate between primitive and non-primitive data structures.
4. Differentiate between linear and non-linear data structures.
5. Explain various operations performed on data structures.
6. Define an array and explain its characteristics.
7. Explain the memory representation of a one-dimensional array.
8. Explain array traversal with an example.
9. Explain array insertion with an example.
10. Explain array deletion with an example.
11. Explain the advantages of arrays.
12. Explain the disadvantages of arrays.
13. Differentiate between one-dimensional and two-dimensional arrays.

- **Long Answer Questions (6 marks questions)**

1. Define Data Structure and explain its types with suitable examples.
2. Explain primitive and non-primitive data structures in detail with examples.
3. Differentiate between linear and non-linear data structures with a comparison table.
4. Explain arrays, their characteristics, and memory representation with suitable diagrams.
5. Explain array traversal, insertion, and deletion with suitable algorithms and examples.
6. Explain the memory representation of one-dimensional arrays with examples.
7. Explain the advantages, disadvantages, and applications of arrays.

Unit II -Stacks and Queues

● Answers in one or two lines (1 mark questions)

1. Define a stack.
2. What is a queue?
3. Which principle does a stack follow?
4. Which principle does a queue follow?
5. Expand LIFO.
6. Expand FIFO.
7. What is the PUSH operation?
8. What is the POP operation?
9. What is the ENQUEUE operation?
10. What is the DEQUEUE operation?
11. What is stack overflow?
12. What is stack underflow?
13. What is queue overflow?
14. What is queue underflow?
15. What is the TOP pointer in a stack?
16. What is the FRONT pointer in a queue?
17. What is the REAR pointer in a queue?
18. Name any two types of queues.
19. What is a circular queue?
20. What is a priority queue?

● Short Answer Questions (3 marks questions)

1. Explain the concept of a stack.
2. Explain the memory representation of a stack.
3. Explain the PUSH operation with an example.
4. Explain the POP operation with an example.
5. Explain stack traversal.
6. Explain stack overflow and stack underflow.
7. Explain the concept of a queue.
8. Explain the memory representation of a queue.
9. Explain the ENQUEUE operation with an example.
10. Explain the DEQUEUE operation with an example.
11. Explain queue traversal.
12. Differentiate between stack and queue.
13. Explain a circular queue.
14. Explain priority queue.

- **Long Answer Questions (6 marks questions)**

1. Define a stack and explain its memory representation with suitable diagrams.
2. Explain stack operations (Push, Pop, Traversing) with suitable algorithms.
3. Explain queue and its memory representation with suitable diagrams.
4. Explain queue operations (Enqueue, Dequeue, Traversing) with suitable algorithms.
5. Differentiate between stack and queue with a comparison table and examples.
6. Explain different types of queues with suitable diagrams.
7. Explain stack overflow and stack underflow with examples.
8. Explain queue overflow and queue underflow with examples.
9. Explain the applications of stacks and queues in computer science.
10. Write algorithms for Push, Pop, Enqueue, and Dequeue operations.



Unit III - Introduction to Database, DBMS Architecture and SQL

- **Answers in one or two lines (1 mark questions)**

1. Define data.
2. Define information.
3. What is a database?
4. Define DBMS.
5. What is the need for a database?
6. What is the Relational Model?
7. Expand DBMS.
8. Expand SQL.
9. Who is a Database Administrator (DBA)?
10. Name any two responsibilities of a DBA.
11. What is the architecture of DBMS?
12. What is SQL?
13. Name the components of SQL.
14. Expand DDL.
15. Expand DML.
16. Expand DCL.
17. Expand TCL.
18. What is the purpose of the SELECT statement?
19. What is the WHERE clause?
20. What is the ORDER BY clause?
21. What is the GROUP BY clause?
22. What is the HAVING clause?
23. Name any four SQL data types.
24. What is an SQL operator?
25. Name any two comparison operators in SQL.

- **Short Answer Questions (3 marks questions)**

1. Differentiate between data and information.
2. Explain the characteristics of a database.
3. Explain the need for a DBMS.
4. Explain the Relational Model.
5. Explain the architecture of DBMS.
6. Explain the role and responsibilities of a DBA.
7. Explain SQL and its features.
8. Explain the advantages of SQL.
9. Explain SQL data types with examples.
10. Explain SQL operators with examples.
11. Differentiate between DDL and DML.

12. Differentiate between DCL and TCL.
13. Explain the components of SQL.
14. Explain the SELECT statement with syntax.
15. Explain the WHERE, ORDER BY, GROUP BY, and HAVING clauses with examples.

● **Long Answer Questions (6 marks questions)**

1. Explain the concepts of Data, Information, Database, and DBMS with suitable examples.
2. Explain the characteristics and needs of a database in detail.
3. Explain the Relational Model and Architecture of DBMS with neat diagrams.
4. Explain the role, functions, and responsibilities of a Database Administrator (DBA).
5. Explain SQL, its features, characteristics, and advantages in detail.
6. Explain SQL data types and operators with suitable examples.
7. Explain the components of SQL (DDL, DML, DCL, and TCL) with suitable commands.
8. Explain the SELECT statement and its clauses (WHERE, ORDER BY, GROUP BY, and HAVING) with suitable examples.
9. Differentiate between DDL, DML, DCL, and TCL commands with examples.
10. Write SQL queries using SELECT, WHERE, ORDER BY, GROUP BY, and HAVING clauses.

Unit IV - Constraints, Views, Indexes, Joins, Union and In-Built Functions

● Answers in one or two lines (1 mark questions)

1. What is a constraint in SQL?
2. Define Primary Key.
3. Define Foreign Key.
4. What is a Unique Constraint?
5. What is a NOT NULL Constraint?
6. What is a CHECK Constraint?
7. What is a DEFAULT Constraint?
8. What is a View?
9. What is a Snapshot?
10. What is an Index?
11. What is a Join?
12. What is a Union?
13. What is an Alias?
14. What is a NULL value?
15. What is the NVL() function?
16. What is a Subquery?
17. Name any two types of joins.
18. What is an Inner Join?
19. What is an Outer Join?
20. Name any two character functions in SQL.
21. Name any two number functions.
22. Name any two date functions.
23. What is a Group Function?
24. Name any one conversion function.
25. What is the purpose of an Index?

● Short Answer Questions (3 marks questions)

1. Explain different types of SQL constraints.
2. Explain the Primary Key and Foreign Key constraints.
3. Explain the NOT NULL, UNIQUE, and CHECK constraints.
4. Explain operations on a table using constraints.
5. Explain the need and advantages of Views.
6. Explain different types of Views.
7. Explain the need and advantages of Indexes.
8. Explain different types of Joins with examples.
9. Differentiate between Join and Union.
10. Explain Character Functions with examples.
11. Explain Number Functions with examples.

12. Explain Date Functions with examples.
13. Explain Group Functions with examples.
14. Explain the use of Alias, NULL, and NVL().
15. Explain Subqueries with suitable examples.

● **Long Answer Questions (6 marks questions)**

1. Explain SQL Constraints and their types with suitable examples.
2. Explain table creation and constraint implementation with SQL commands.
3. Explain Views, their needs, advantages, and types with suitable examples.
4. Explain Indexes, their needs, types, and advantages with suitable examples.
5. Explain different types of Joins with suitable SQL queries and examples.
6. Differentiate between Join and Union with examples.
7. Explain Character, Number, Date, Group, and Conversion Functions with examples.
8. Explain the use of Alias, NULL, NVL(), and Subqueries with suitable SQL queries.
9. Write SQL queries using Constraints, Views, Indexes, and Joins.
10. Explain all major SQL functions with suitable examples.