



Dezyne École College

Bachelor of Computer Application (B.C.A.) First Year-2nd Semester

Database Technology

Part-A: 20 Short Answer Questions (2 Marks Each)

(Answer in approx. 50 words)

1. Define database system.
2. What is data abstraction?
3. Write a use of DDL.
4. Mention any two responsibilities of a Database Administrator.
5. What is a tuple in a relation?
6. Define domain and attribute in the context of DBMS.
7. Differentiate between candidate key and super key.
8. What is the purpose of the ER model?
9. Define a relational database model.
10. What is the difference between hierarchical and network model?
11. What is functional dependency?
12. Define the first normal form (1NF).
13. What is decomposition of a relation?
14. Write any two relational algebra operations.
15. What is the difference between SELECT * and SELECT column_name in MySQL?
16. What is the use of LIKE operator in MySQL?
17. How do you create a database in MySQL?
18. What is the function of ORDER BY clause?
19. Write a command to delete a table in MySQL.
20. What does NULL mean in SQL?

21. What do you mean by referential integrity?
22. What is logical data independence and physical data independence?
23. Name the various operation of DBMS?
24. What is normalization? Give definition of 2NF.
25. What is weak entity set?
26. What is DCL? Give two commands.
27. Define DBMS.
28. What is candidate key?
29. What do you mean by entity set?
30. What do you mean by super key?
31. What is derived attributes?
32. What do you mean by a database?
33. Write any two DROP commands with meaning.
34. Explain SELECT command.
35. List any 7 advantages of DBMS.
36. What do you mean by an Entity?
37. What do you mean by ER model?
38. What is the role of DBA?
39. What is entity?
40. What do you mean by the term 'Query' in DBMS?

Part-B: 40 Long Answer Questions (10 Marks Each)

(Answer in approx. 400 words)

Unit I: DBMS Basics, ER Model, and Architectures

1. Describe the limitations of the conventional file system and how DBMS overcomes them.
2. Explain the levels of data abstraction in DBMS with a diagram.
3. Discuss the role of DDL and DML with examples.
4. What are the responsibilities of a Database Administrator (DBA)?
5. Explain different stages of database design with an example.
6. Describe the three-schema architecture of a database system.

7. What is the ER model? Create an ER diagram for a Library Management System.
8. Define and differentiate between primary key, super key, and candidate key with examples.
9. Compare the hierarchical, network, and relational data models.
10. Explain different file organization techniques used in DBMS.

Unit II: Relational Model, Algebra, and Normalization

11. Explain storage organization of relations. How are tables physically stored?
12. What is relational algebra? Explain the selection, projection, and join operations.
13. Define set operations in relational algebra with examples (UNION, INTERSECTION, DIFFERENCE).
14. What is functional dependency? Explain partial, transitive and trivial dependencies.
15. Explain the steps involved in normalizing a table up to BCNF.
16. Consider a relation and perform 1NF, 2NF, 3NF, and BCNF on it.
17. What is lossless decomposition? Explain its importance.
18. Differentiate between relation schema and relation instance.
19. Discuss the anomalies that normalization helps to avoid.
20. Explain how relational operators are used to manipulate and retrieve data.

Unit III: MySQL Queries, Table Management, and Data Handling

21. Explain how to connect and disconnect from a MySQL server.
22. Write SQL commands to create a database, create a table, and insert values.
23. How do you retrieve specific rows and columns from a table using SELECT?
24. Explain how sorting and pattern matching is done in MySQL.
25. Write a query to count the number of rows where salary is greater than 30,000.
26. How are NULL values handled in MySQL? Give examples.
27. What are joins? Write SQL queries for inner join and left join with examples.
28. Explain how to perform date calculations in MySQL.
29. How do you update and delete rows from a table in MySQL?
30. Describe the process of connecting to a MySQL database from a front-end application (like PHP or Python).
31. Explain how to load bulk data into a MySQL table using LOAD DATA command.
32. Write SQL queries using aggregate functions: SUM(), AVG(), MIN(), MAX().

33. How do you query data from multiple tables using joins?
34. Explain the concept of transactions and COMMIT, ROLLBACK in MySQL.
35. Write a SQL program to create a student table and perform CRUD operations.
36. What are constraints in SQL? Explain PRIMARY KEY, UNIQUE, and FOREIGN KEY.
37. Describe the use of aliases in SQL queries.
38. Write a query to display employee details sorted by salary in descending order.
39. Explain how GROUP BY and HAVING clauses are used in MySQL.
40. How is indexing used in MySQL to improve query performance?



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Bachelor of Computer Applications (BCA)
(Part-I) (Semester-II)
Examination, 2024
BCA - 204
Database Technology

Duration of Examination: 3 Hours

परीक्षा की अवधि: 3 घण्टा

Max. Marks: 70

पूर्णांक: 70

Instructions to the Candidates:

परीक्षार्थी के लिए निर्देश:-

Note:- The question paper is divided into 02 Parts : Part- A & Part B.

Part-A

Part-A Will consist of 10 compulsory questions. Answer to each question shall be limited up to 50 words. Each question will carry 02 marks. Total 20 Marks.

(Marks-10x2=20)

Part-B

Part-B Will consist of 10 questions. Student will have to answer 05 questions, selecting At least one questions from each unit. The answer to each question shall be limited to 400 words. Each question carries 10 Marks. Total 50 Marks.

(Marks-5x10=50)

Part-A

- 1- Define conventional file system?
- 2- Define tuples in database?
- 3- Define entityset in database?
- 4- Define attributes?
- 5- Define set operators?
- 6- Define decomposition and its types?
- 7- What are the advantages of relational algebra?
- 8- How we can access system data and what its format in MySQL?
- 9- Which command is used to check pattern in MySQL?
- 10- Why we use multiple tables in a database?



Part-B

Unit-I

- 11- Short notes on:- (a) DDL (b) DML
- 12- Explain database system architecture in detail?
- 13- Define E-R model? Explain the components of E-R model?
- 14- Differentiate between superkey and candidate key?

Unit-II

- 15- Define normalization? What are the conditions required for a relation to be in 2NF, 3NF, and BCNF?
- 16- Explain functional dependencies and its types with example?
- 17- Explain relational operators in detail?

Unit-III

- 18- How we create and using a database in MySQL?
- 19- How we connect a MySQL database from server?
- 20- Define trigger? Explain its different types with example?
