

DBMS MCQ Question Bank

1. Which of the following is an advantage of DBMS over file processing systems?

- A) Data redundancy and inconsistency
- B) Data isolation
- C) Data abstraction and controlled access
- D) Limited query processing

Answer: C

2. What is data abstraction in DBMS?

- A) Hiding complex details and showing only essential features
- B) Removing redundant data
- C) Optimizing data access
- D) Securing the database

Answer: A

3. Which of the following is NOT a component of DBMS?

- A) Database engine
- B) File management system
- C) Query processor
- D) Data dictionary

Answer: B

4. Which language is used for defining the structure of a database?

- A) DML
- B) DDL
- C) TCL
- D) SQL

Answer: B

5. What is meant by data independence in DBMS?

- A) The ability to modify data without affecting the application
- B) The ability to access data without authentication
- C) Storing redundant data in multiple locations

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D) Controlling access to the data

Answer: A

6. Which of the following is NOT a type of data model?

A) Hierarchical model

B) Network model

C) Relational model

D) Unstructured model

Answer: D

7. Which type of relationship is represented by an ER diagram?

A) One-to-one

B) One-to-many

C) Many-to-many

D) All of the above

Answer: D

8. In an ER diagram, what does a diamond shape represent?

A) Attribute

B) Entity

C) Relationship

D) Key

Answer: C

9. Which of the following is NOT a database language?

A) SQL

B) JavaScript

C) DML

D) DDL

Answer: B

10. Which component of DBMS is responsible for maintaining metadata?

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- A) Database engine
- B) Query processor
- C) Data dictionary
- D) Transaction manager

Answer: C

11. Codd's rules are associated with which type of database model?

- A) Hierarchical
- B) Relational
- C) Object-oriented
- D) Network

Answer: B

12. Which Codd's rule states that a database must support a high-level language like SQL?

- A) Logical data independence
- B) Comprehensive data sublanguage rule
- C) Physical data independence
- D) Integrity independence

Answer: B

13. What does ER in ER diagrams stand for?

- A) Entity Representation
- B) Entity Relationship
- C) Entity Record
- D) Entity Relational

Answer: B

14. In an ER model, attributes are represented by:

- A) Rectangles
- B) Ellipses
- C) Diamonds
- D) Squares

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Answer: B

15. A key that uniquely identifies a record in a table is called a:

- A) Foreign key
- B) Composite key
- C) Primary key
- D) Candidate key

Answer: C

16. Which of the following is NOT a characteristic of a relational database?

- A) Data is accessed through pointers
- B) Relationships are established through keys
- C) Data integrity is maintained
- D) Controlling access to the data

Answer: C

17. What is a domain in the relational model?

- A) A subset of attributes
- B) A set of allowable values for an attribute
- C) A tables primary key
- D) A relationship between tables

Answer: B

18. Which of the following is NOT a type of key in a database?

- A) Candidate key
- B) Primary key
- C) Unique key
- D) Exclusive key

Answer: D

19. Which tool is commonly used for creating and managing MySQL databases in XAMPP?

- A) Apache Server

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- B) phpMyAdmin
- C) MySQL Command Line
- D) SQL Studio

Answer: B

20. In the relational model, what do tuples represent?

- A) Columns in a table
- B) Rows in a table
- C) Constraints on data
- D) Relationships between tables

Answer: B

21. What does the term 'system catalog' refer to?

- A) A user table storing customer data
- B) Metadata about database structure and objects
- C) Data files used for system recovery
- D) Temporary storage for queries

Answer: B

22. What is the purpose of constraints in a database?

- A) To prevent unauthorized access
- B) To specify rules for data integrity
- C) To reduce storage requirements
- D) To improve query performance

Answer: B

23. Which of the following is a multi-user DBMS architecture?

- A) Single-tier architecture
- B) Two-tier architecture
- C) Three-tier architecture
- D) Both B and C

Answer: D

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24. Which of the following is a component of the ER model?

- A) Attributes
- B) Relationships
- C) Entities
- D) All of the above

Answer: D

25. Which database tool is used in XAMPP to interact with MySQL?

- A) SQL Server Management Studio
- B) phpMyAdmin
- C) PostgreSQL
- D) MongoDB Compass

Answer: B

26. Which property ensures that data remains consistent and reliable in a DBMS?

- A) Redundancy
- B) Scalability
- C) Efficiency
- D) Data Integrity

Answer: C

27. In an ER model, weak entities are represented by:

- A) Double rectangles
- B) Double diamonds
- C) Dashed lines
- D) Double ellipses

Answer: A

28. Which of the following is true about attributes in the ER model?

- A) They represent relationships
- B) They represent the properties of entities
- C) They connect entities

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D) They are not a part of ER diagrams

Answer: B

29. Which of the following is an example of a relational database?

- A) MongoDB
- B) PostgreSQL
- C) Redis
- D) DynamoDB

Answer: B

30. Converting an ER diagram into tables involves:

- A) Mapping entities and attributes to rows and columns
- B) Removing constraints
- C) Using only weak entities
- D) Ignoring relationships

Answer: A

31. Which of the following is a DDL command in SQL?

- A) SELECT
- B) UPDATE
- C) CREATE
- D) INSERT

Answer: C

32. What does DML stand for?

- A) Data Manipulation Language
- B) Data Management Language
- C) Database Modification Language
- D) Data Markup Language

Answer: A

33. Which SQL clause is used to filter records?

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- A) WHERE
- B) ORDER BY
- C) GROUP BY
- D) HAVING

Answer: A

34. Which SQL keyword is used to retrieve unique values?

- A) UNIQUE
- B) DISTINCT
- C) SEPARATE
- D) FILTER

Answer: B

35. Which of the following is NOT an aggregate function?

- A) COUNT
- B) SUM
- C) AVG
- D) ORDER BY

Answer: D

36. What is the purpose of the SQL GROUP BY clause?

- A) Filter records
- B) Sort records
- C) Group records with similar values
- D) Delete duplicate records

Answer: C

37. Which SQL statement is used to insert new records in a table?

- A) INSERT INTO
- B) ADD RECORD
- C) UPDATE TABLE
- D) NEW ENTRY

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Answer: A

38. What is the default sorting order of ORDER BY clause?

- A) Ascending
- B) Descending
- C) Random
- D) None

Answer: A

39. Which SQL function is used to return the number of records in a query?

- A) SUM()
- B) COUNT()
- C) TOTAL()
- D) NUMBER()

Answer: B

40. Which SQL operator is used to check for a NULL value?

- A) =
- B) !=
- C) IS NULL
- D) nan

Answer: C

41. Which of the following is a valid SQL data type?

- A) Integer
- B) Character
- C) Boolean
- D) All of the above

Answer: D

42. Which of the following SQL commands is used to create a view?

- A) DEFINE VIEW

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- B) MAKE VIEW
- C) CREATE VIEW
- D) VIEW CREATE

Answer: C

43. Which SQL clause is used to sort the result-set?

- A) SORT BY
- B) ORDER BY
- C) GROUP BY
- D) FILTER BY

Answer: B

44. What does the HAVING clause do in SQL?

- A) Filters records
- B) Sorts records
- C) Filters grouped records
- D) Joins tables

Answer: C

45. Which statement is true about primary keys?

- A) A table can have multiple primary keys
- B) A primary key can have NULL values
- C) Primary key uniquely identifies a row
- D) Primary key allows duplicate values

Answer: C

46. Which of the following is NOT a SQL join type?

- A) INNER JOIN
- B) OUTER JOIN
- C) CROSS JOIN
- D) MERGE JOIN

Answer: D

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47. What is the purpose of the SQL UNION operator?

- A) Combine result sets without duplicates
- B) Combine result sets with duplicates
- C) Join two tables
- D) Sort records

Answer: A

48. Which SQL clause is used to rename a column in the output?

- A) ALIAS
- B) RENAME
- C) AS
- D) CHANGE

Answer: C

49. Which statement correctly deletes all records from a table?

- A) DELETE * FROM table_name
- B) DELETE FROM table_name
- C) TRUNCATE TABLE table_name
- D) REMOVE FROM table_name

Answer: C

50. Which SQL keyword is used to retrieve data from multiple tables?

- A) JOIN
- B) MERGE
- C) COMBINE
- D) UNION

Answer: A

51. What does the SQL LIMIT clause do?

- A) Filters records
- B) Sorts records
- C) Limits the number of rows returned

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D) Joins tables

Answer: C

52. Which SQL keyword is used to modify existing records in a table?

A) MODIFY

B) CHANGE

C) UPDATE

D) ALTER

Answer: C

53. Which SQL function is used to return the highest value in a column?

A) MAX()

B) HIGH()

C) TOP()

D) LARGEST()

Answer: A

54. What is the purpose of a SQL stored procedure?

A) Automate repetitive SQL operations

B) Store query results

C) Create temporary tables

D) Sort query output

Answer: A

55. Which SQL trigger event occurs before an INSERT operation?

A) BEFORE INSERT

B) AFTER INSERT

C) ON INSERT

D) INSERT EVENT

Answer: A

56. What is the main purpose of normalization in a relational database?

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- A) To eliminate redundancy and improve data integrity
- B) To increase data redundancy
- C) To make database design more complex
- D) To store data in a non-structured format

Answer: A

57. Which normal form ensures that there are no partial dependencies in a table?

- A) 1NF
- B) 2NF
- C) 3NF
- D) BCNF

Answer: B

58. Which of the following is NOT a type of anomaly caused by data redundancy?

- A) Insertion anomaly
- B) Deletion anomaly
- C) Modification anomaly
- D) Referential anomaly

Answer: D

59. A relation is in BCNF if it is in 3NF and has:

- A) No transitive dependencies
- B) No partial dependencies
- C) Only trivial functional dependencies
- D) No candidate keys

Answer: C

60. What is a functional dependency in a relational database?

- A) A constraint between two attributes
- B) A relation between two tables
- C) A method to store large data
- D) A process of indexing data

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Answer: A

61. Which SQL operation retrieves data from multiple tables based on a related column?

- A) SELECT
- B) JOIN
- C) GROUP BY
- D) HAVING

Answer: B

62. What is the purpose of query optimization?

- A) To minimize query execution time
- B) To increase redundancy
- C) To create complex queries
- D) To reduce normalization

Answer: A

63. Which measure is commonly used to evaluate query performance?

- A) Number of indexes
- B) Query cost
- C) Query size
- D) Table size

Answer: B

64. Which normal form removes transitive dependencies?

- A) 1NF
- B) 2NF
- C) 3NF
- D) BCNF

Answer: C

65. Which join operation returns only matching rows from both tables?

- A) LEFT JOIN

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- B) RIGHT JOIN
- C) INNER JOIN
- D) FULL OUTER JOIN

Answer: C

66. A table is in 1NF if:

- A) All attributes are atomic
- B) It has a primary key
- C) There are no duplicate rows
- D) It has a foreign key

Answer: A

67. Which normalization form is considered the strictest?

- A) 1NF
- B) 2NF
- C) 3NF
- D) BCNF

Answer: D

68. What is the first step in normalization?

- A) Eliminating repeating groups
- B) Removing transitive dependencies
- C) Identifying foreign keys
- D) Denormalization

Answer: A

69. What does an update anomaly result in?

- A) Inconsistent data
- B) Loss of data
- C) Better performance
- D) Faster queries

Answer: A

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70. What type of join retrieves all records from both tables?

- A) INNER JOIN
- B) OUTER JOIN
- C) SELF JOIN
- D) CROSS JOIN

Answer: B

71. Which of the following is NOT a measure of query cost?

- A) CPU cost
- B) I/O cost
- C) Memory cost
- D) Indexing cost

Answer: D

72. In query processing, what does selection operation do?

- A) Filters specific rows
- B) Filters specific columns
- C) Joins two tables
- D) Orders the result

Answer: A

73. In query optimization, what does transformation of relational expressions mean?

- A) Changing the structure of queries to improve efficiency
- B) Deleting unnecessary tables
- C) Removing columns
- D) Changing attribute names

Answer: A

74. What is a primary benefit of BCNF?

- A) Eliminates redundancy
- B) Increases redundancy
- C) Improves query complexity

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D) Allows duplicate data

Answer: A

75. Which technique is used to estimate query performance?

- A) Query transformation
- B) Query estimation
- C) Query execution plan
- D) Query optimization

Answer: C

76. Which of the following is a step in query processing?

- A) Query parsing
- B) Query normalization
- C) Query validation
- D) Query execution

Answer: A

77. Which type of join combines all records from two tables?

- A) INNER JOIN
- B) LEFT JOIN
- C) FULL OUTER JOIN
- D) RIGHT JOIN

Answer: C

78. What is an advantage of query optimization?

- A) Faster execution
- B) Increased redundancy
- C) More storage usage
- D) Slower performance

Answer: A

79. Which normal form eliminates partial dependencies?

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- A) 1NF
- B) 2NF
- C) 3NF
- D) BCNF

Answer: B

80. What is the primary goal of transaction management in a database?

- A) To ensure data consistency, integrity, and isolation
- B) To speed up query execution
- C) To reduce storage space
- D) To enhance the user interface

Answer: A

81. Which ACID property ensures that either all parts of a transaction are executed or none?

- A) Atomicity
- B) Consistency
- C) Isolation
- D) Durability

Answer: A

82. What is the purpose of a database lock?

- A) To prevent unauthorized user access
- B) To ensure concurrent transactions do not cause data inconsistency
- C) To reduce memory usage
- D) To optimize query execution speed

Answer: B

83. Which type of lock allows multiple transactions to read the same data but prevents write operations?

- A) Shared Lock
- B) Exclusive Lock
- C) Deadlock

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D) Binary Lock

Answer: A

84. What happens when a deadlock occurs in a database system?

A) Transactions wait indefinitely for resources

B) Transactions complete successfully

C) The system speeds up execution

D) The system automatically rolls back all transactions

Answer: A

85. Which of the following is NOT a concurrency control technique?

A) Two-Phase Locking

B) Time Stamping

C) Query Optimization

D) Multiversion Concurrency Control

Answer: C

86. Which protocol ensures that transactions acquire all locks before releasing any?

A) Two-Phase Locking

B) Optimistic Concurrency Control

C) Deadlock Prevention

D) Shadow Paging

Answer: A

87. What is the purpose of a transaction log in a database?

A) To store a history of all executed queries

B) To track changes for recovery purposes

C) To improve query speed

D) To store metadata information

Answer: B

88. Which technique is used to recover a database after a system crash?

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- A) Shadow Paging
- B) Normalization
- C) Indexing
- D) Denormalization

Answer: A

89. What does the 'Durability' property of ACID ensure?

- A) Changes made by a committed transaction persist even after a system failure
- B) Transactions execute sequentially
- C) Data is normalized
- D) Only one transaction can run at a time

Answer: A

90. Which of the following is a common reason for deadlocks?

- A) Cyclic waiting for resources
- B) Too many indexes
- C) Poor query performance
- D) Lack of database normalization

Answer: A

91. Which statement about serializability in databases is TRUE?

- A) A schedule is serializable if it produces the same results as a serial schedule
- B) Serializable schedules allow conflicts
- C) Non-serializable schedules are always correct
- D) It ensures data redundancy

Answer: A

92. Which of the following is NOT an isolation level in SQL?

- A) Read Committed
- B) Repeatable Read
- C) Serializable
- D) Two-Phase Locking

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Answer: D

93. Which of the following techniques is used to break a deadlock?

- A) Wait-Die and Wound-Wait
- B) Indexing
- C) Denormalization
- D) Normalization

Answer: A

94. Which of the following concurrency control methods does NOT use locks?

- A) Timestamp Ordering
- B) Two-Phase Locking
- C) Strict Two-Phase Locking
- D) Shared Locking

Answer: A

95. What does a write-ahead log (WAL) ensure in a database system?

- A) Changes are written to the log before applying them to the database
- B) Transactions execute faster
- C) It prevents deadlocks
- D) It eliminates the need for locks

Answer: A

96. What is the primary purpose of database checkpoints?

- A) To reduce system downtime during recovery
- B) To optimize queries
- C) To prevent deadlocks
- D) To normalize the database

Answer: A

97. Which isolation level allows dirty reads?

- A) Read Uncommitted

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- B) Read Committed
- C) Repeatable Read
- D) Serializable

Answer: A

98. Which method is used to avoid cascading rollbacks in transactions?

- A) Strict Two-Phase Locking
- B) Shared Locking
- C) Time Stamping
- D) Optimistic Concurrency Control

Answer: A

99. Which of the following statements about optimistic concurrency control is TRUE?

- A) It assumes conflicts are rare and delays validation until commit
- B) It prevents all conflicts
- C) It uses strict locking mechanisms
- D) It requires high memory usage

Answer: A

100. Which technique is best suited for a system with a high number of read operations and few writes?

- A) Optimistic Concurrency Control
- B) Two-Phase Locking
- C) Strict Two-Phase Locking
- D) Deadlock Detection

Answer: A

101. Which concurrency control technique ensures multiple versions of a data item are maintained?

- A) Multiversion Concurrency Control (MVCC)
- B) Two-Phase Locking
- C) Serial Execution
- D) Shadow Paging

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Answer: A

102. What is the main goal of deadlock prevention techniques?

- A) To ensure transactions do not wait indefinitely for resources
- B) To optimize queries
- C) To minimize disk usage
- D) To improve indexing

Answer: A

103. Which transaction property ensures that all changes made by a committed transaction are permanent?

- A) Durability
- B) Atomicity
- C) Consistency
- D) Isolation

Answer: A

104. Which of the following is NOT a database architecture?

- A) Centralized
- B) Client-Server
- C) 2-Tier
- D) Decentralized

Answer: D

105. Which architecture consists of a database server and multiple client machines?

- A) Centralized
- B) Client-Server
- C) Distributed
- D) Parallel

Answer: B

106. What is a key feature of a Parallel Database?

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- A) Single processor handling all queries
- B) Multiple processors working together
- C) Only one transaction at a time
- D) No distributed computing

Answer: B

107. Which of the following is NOT an emerging database technology?

- A) NoSQL Databases
- B) Cloud Databases
- C) Mobile Databases
- D) Hierarchical Databases

Answer: D

108. Which of the following is an example of a NoSQL database?

- A) MySQL
- B) PostgreSQL
- C) MongoDB
- D) Oracle

Answer: C

109. What is the primary benefit of Cloud Databases?

- A) Lower storage capacity
- B) Limited accessibility
- C) Scalability and availability
- D) Fixed storage cost

Answer: C

110. Which of the following is a lightweight, file-based database used in mobile applications?

- A) MongoDB
- B) SQLite
- C) PostgreSQL
- D) Redis

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Answer: B

111. Which database structure is best suited for handling semi-structured data?

- A) Relational Databases
- B) Hierarchical Databases
- C) XML Databases
- D) Object-Oriented Databases

Answer: C

112. Which of the following is NOT an advantage of Distributed Databases?

- A) Improved Reliability
- B) Lower Network Latency
- C) Better Performance
- D) Scalability

Answer: B

113. What does a 2-Tier Database Architecture consist of?

- A) Client and Database Server
- B) Client, Middleware, and Database Server
- C) Client, Application Server, and Database Server
- D) Multiple Clients Only

Answer: A

114. What is an advantage of Parallel Databases?

- A) Slower query execution
- B) Higher transaction cost
- C) Improved performance
- D) Limited scalability

Answer: C

115. Which of the following is a distributed database architecture?

- A) Client-Server

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- B) Centralized
- C) Homogeneous
- D) 2-Tier

Answer: C

116. Which database system is best suited for real-time inventory tracking?

- A) Hierarchical Database
- B) Relational Database
- C) Distributed Database
- D) Graph Database

Answer: C

117. Which type of NoSQL database is best for managing relationships between entities?

- A) Document Store
- B) Key-Value Store
- C) Column Family Store
- D) Graph Database

Answer: D

118. What is a disadvantage of NoSQL databases?

- A) High Scalability
- B) Flexible Schema
- C) Lack of ACID compliance
- D) Fast Query Processing

Answer: C

119. Which of the following supports JSON document storage?

- A) MongoDB
- B) Oracle
- C) MySQL
- D) SQLite

Answer: A

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120. Which type of database is most commonly used in Big Data applications?

- A) Relational Databases
- B) NoSQL Databases
- C) Hierarchical Databases
- D) Network Databases

Answer: B

121. Which SQL database is widely used in cloud-based applications?

- A) MySQL
- B) PostgreSQL
- C) SQLite
- D) Both MySQL and PostgreSQL

Answer: D

122. What is a common method for ensuring data consistency in distributed databases?

- A) Sharding
- B) Replication
- C) Partitioning
- D) Compression

Answer: B

123. Which of the following is a feature of cloud databases?

- A) On-premise storage
- B) Scalability
- C) Single access point
- D) Fixed cost

Answer: B

124. What is the primary function of XML databases?

- A) Store relational data
- B) Store unstructured textual data
- C) Store semi-structured data

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D) Only handle SQL queries

Answer: C

125. Which component of a database architecture interacts with end-users?

A) Database Server

B) Middleware

C) Client

D) Query Optimizer

Answer: C

126. Which of the following is NOT a key element of parallel database processing?

A) Multiple CPUs

B) High latency

C) Efficient Query Execution

D) Data Partitioning

Answer: B

127. Which technique helps improve query efficiency in large-scale distributed databases?

A) Indexing

B) Replication

C) Query Rewriting

D) All of the above

Answer: D

128. Which of the following best describes a cloud database?

A) Database stored on a local machine

B) Database hosted on remote servers

C) Database with no network access

D) Database that cannot scale

Answer: B