

## 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

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

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

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

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

- A. DML
- B. DDL**
- C. TCL
- D. SQL

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
- D. Controlling access to the data

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

- A. Hierarchical model

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- B. Network model
- C. Relational model
- D. Unstructured model**

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**

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

- A. Attribute
- B. Entity
- C. Relationship**
- D. Key

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

- A. SQL
- B. JavaScript**
- C. DML
- D. DDL

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

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

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

- A. Hierarchical
- B. Relational**
- C. Object-oriented

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D. Network

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

13. What does ER in ER diagrams stand for?

A. Entity Representation

**B. Entity Relationship**

C. Entity Record

D. Entity Relational

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

A. Rectangles

**B. Ellipses**

C. Diamonds

D. Squares

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

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

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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 table's primary key

D. A relationship between tables

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**

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

A. Apache Server

**B. phpMyAdmin**

C. MySQL Command Line

D. SQL Studio

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

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

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

A. To prevent unauthorized access

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**B. To specify rules for data integrity**

C. To reduce storage requirements

D. To improve query performance

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**

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

A. Attributes

B. Relationships

C. Entities

**D. All of the above**

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

A. SQL Server Management Studio

**B. phpMyAdmin**

C. PostgreSQL

D. MongoDB Compass

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

A. Redundancy

B. Scalability

**C. Efficiency**

D. Data Integrity

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

**A. Double rectangles**

B. Double diamonds

C. Dashed lines

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D. Double ellipses

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

D. They are not a part of ER diagrams

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

A. MongoDB

**B. PostgreSQL**

C. Redis

D. DynamoDB

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

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

A. SELECT

B. UPDATE

**C. CREATE**

D. INSERT

32. What does DML stand for?

**A. Data Manipulation Language**

B. Data Management Language

C. Database Modification Language

D. Data Markup Language

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33. Which SQL clause is used to filter records?

**A. WHERE**

B. ORDER BY

C. GROUP BY

D. HAVING

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

A. UNIQUE

**B. DISTINCT**

C. SEPARATE

D. FILTER

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

A. COUNT

B. SUM

C. AVG

**D. ORDER BY**

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

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

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

**A. Ascending**

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- B. Descending
- C. Random
- D. None

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

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

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

- A. =
- B. !=
- C. IS NULL**
- D. nan

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

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

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

- A. DEFINE VIEW
- B. MAKE VIEW
- C. CREATE VIEW**
- D. VIEW CREATE

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

- A. SORT BY
- B. ORDER BY**
- C. GROUP BY



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D. FILTER BY

44. What does the HAVING clause do in SQL?

A. Filters records

B. Sorts records

**C. Filters grouped records**

D. Joins tables

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

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

A. INNER JOIN

B. OUTER JOIN

C. CROSS JOIN

**D. MERGE JOIN**

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

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

A. ALIAS

B. RENAME

**C. AS**

D. CHANGE

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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

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

**A. JOIN**

B. MERGE

C. COMBINE

D. UNION

51. What does the SQL LIMIT clause do?

A. Filters records

B. Sorts records

**C. Limits the number of rows returned**

D. Joins tables

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

A. MODIFY

B. CHANGE

**C. UPDATE**

D. ALTER

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

**A. MAX()**

B. HIGH()

C. TOP()

D. LARGEST()

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

**A. Automate repetitive SQL operations**

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- B. Store query results
- C. Create temporary tables
- D. Sort query output

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

**A. BEFORE INSERT**

- B. AFTER INSERT
- C. ON INSERT
- D. INSERT EVENT

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

**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

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

A. 1NF

**B. 2NF**

- C. 3NF
- D. BCNF

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**

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**

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D. No candidate keys

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

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

A. SELECT

**B. JOIN**

C. GROUP BY

D. HAVING

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

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

A. Number of indexes

**B. Query cost**

C. Query size

D. Table size

64. Which normal form removes transitive dependencies?

A. 1NF

B. 2NF

**C. 3NF**

D. BCNF

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

- A. LEFT JOIN
- B. RIGHT JOIN
- C. INNER JOIN**
- D. FULL OUTER JOIN

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

67. Which normalization form is considered the strictest?

- A. 1NF
- B. 2NF
- C. 3NF
- D. BCNF**

68. What is the first step in normalization?

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

69. What does an update anomaly result in?

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

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

- A. INNER JOIN

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### **B. OUTER JOIN**

C. SELF JOIN

D. CROSS JOIN

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**

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

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

74. What is a primary benefit of BCNF?

### **A. Eliminates redundancy**

B. Increases redundancy

C. Improves query complexity

D. Allows duplicate data

75. Which technique is used to estimate query performance?

A. Query transformation

B. Query estimation

### **C. Query execution plan**

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D. Query optimization

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

**A. Query parsing**

B. Query normalization

C. Query validation

D. Query execution

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

A. INNER JOIN

B. LEFT JOIN

**C. FULL OUTER JOIN**

D. RIGHT JOIN

78. What is an advantage of query optimization?

**A. Faster execution**

B. Increased redundancy

C. More storage usage

D. Slower performance

79. Which normal form eliminates partial dependencies?

A. 1NF

**B. 2NF**

C. 3NF

D. BCNF

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

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

**A. Atomicity**

B. Consistency

C. Isolation

D. Durability

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

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

D. Binary Lock

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

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

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



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### **A. Two-Phase Locking**

- B. Optimistic Concurrency Control
- C. Deadlock Prevention
- D. Shadow Paging

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

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

### **A. Shadow Paging**

- B. Normalization
- C. Indexing
- D. Denormalization

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

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

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

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- C. Non-serializable schedules are always correct
- D. It ensures data redundancy

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

- A. Read Committed
- B. Repeatable Read
- C. Serializable

**D. Two-Phase Locking**

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

**A. Wait-Die and Wound-Wait**

- B. Indexing
- C. Denormalization
- D. Normalization

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

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

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

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97. Which isolation level allows dirty reads?

**A. Read Uncommitted**

B. Read Committed

C. Repeatable Read

D. Serializable

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

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

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

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

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

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**A. To ensure transactions do not wait indefinitely for resources**

- B. To optimize queries
- C. To minimize disk usage
- D. To improve indexing

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

**A. Durability**

- B. Atomicity
- C. Consistency
- D. Isolation

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

- A. Centralized
- B. Client-Server
- C. 2-Tier

**D. Decentralized**

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

- A. Centralized

**B. Client-Server**

- C. Distributed
- D. Parallel

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

- A. Single processor handling all queries

**B. Multiple processors working together**

- C. Only one transaction at a time
- D. No distributed computing

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

- A. NoSQL Databases

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- B. Cloud Databases
- C. Mobile Databases

**D. Hierarchical Databases**

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

- A. MySQL
- B. PostgreSQL

**C. MongoDB**

- D. Oracle

109. What is the primary benefit of Cloud Databases?

- A. Lower storage capacity
- B. Limited accessibility

**C. Scalability and availability**

- D. Fixed storage cost

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

- A. MongoDB

**B. SQLite**

- C. PostgreSQL
- D. Redis

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

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

- A. Improved Reliability

**B. Lower Network Latency**

- C. Better Performance

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D. Scalability

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

114. What is an advantage of Parallel Databases?

A. Slower query execution

B. Higher transaction cost

**C. Improved performance**

D. Limited scalability

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

A. Client-Server

B. Centralized

**C. Homogeneous**

D. 2-Tier

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

A. Hierarchical Database

B. Relational Database

**C. Distributed Database**

D. Graph Database

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**

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118. What is a disadvantage of NoSQL databases?

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

119. Which of the following supports JSON document storage?

- A. MongoDB**
- B. Oracle
- C. MySQL
- D. SQLite

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

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

- A. MySQL
- B. PostgreSQL
- C. SQLite
- D. Both MySQL and PostgreSQL**

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

- A. Sharding
- B. Replication**
- C. Partitioning
- D. Compression

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

- A. On-premise storage

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### **B. Scalability**

- C. Single access point
- D. Fixed cost

124. What is the primary function of XML databases?

- A. Store relational data
- B. Store unstructured textual data

### **C. Store semi-structured data**

- D. Only handle SQL queries

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

- A. Database Server
- B. Middleware

### **C. Client**

- D. Query Optimizer

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

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

- A. Indexing
- B. Replication
- C. Query Rewriting

### **D. All of the above**

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



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D. Database that cannot scale