Multiple Choice Q&A

Unit - I:

1. What are some common examples of NoSQL databases?
   a) MySQL, PostgreSQL, Oracle
   b) MongoDB, Cassandra, Redis
   c) SQLite, MariaDB, SQL Server
   d) None of the above
   Answer: b) MongoDB, Cassandra, Redis

2. What is one advantage of using NoSQL databases over traditional SQL databases?
   a) Strong support for ACID transactions
   b) Ability to perform complex joins
   c) Scalability and flexibility
   d) None of the above
   Answer: c) Scalability and flexibility

3. In which industries is NoSQL commonly used?
   a) Healthcare
   b) E-commerce
   c) Social media
   d) All of the above
   Answer: d) All of the above

4. What is the main difference between SQL and NoSQL databases regarding data modeling?
   a) SQL databases use a fixed schema, while NoSQL databases are schema-less or have flexible schemas
   b) SQL databases use NoSQL languages, while NoSQL databases use SQL languages
   c) SQL databases support horizontal scaling, while NoSQL databases support vertical scaling
   d) None of the above
   Answer: a) SQL databases use a fixed schema, while NoSQL databases are schema-less or have flexible schemas

5. What is NewSQL?

a) A traditional SQL database
b) A type of NoSQL database
c) A class of modern relational databases that aim to provide the scalability of NoSQL systems without abandoning SQL
d) None of the above
Answer: c) A class of modern relational databases that aim to provide the scalability of NoSQL systems without abandoning SQL

6. Which statement best describes the relationship between NoSQL, SQL, and NewSQL?
a) NoSQL is an evolution of SQL, and NewSQL is a variation of NoSQL.
b) NewSQL is an evolution of SQL, and NoSQL is a variation of NewSQL.
c) SQL and NoSQL are two separate paradigms, while NewSQL aims to bridge the gap between them.
d) None of the above
Answer: c) SQL and NoSQL are two separate paradigms, while NewSQL aims to bridge the gap between them.

7. What are the main characteristics of a NoSQL database?
a) ACID transactions and schema flexibility
b) Horizontal scalability and eventual consistency
c) Structured data storage and strict schema enforcement
d) None of the above
Answer: b) Horizontal scalability and eventual consistency

8. Which of the following is NOT a type of NoSQL database?
a) Document-oriented
b) Key-Value
c) Columnar
d) Relational
Answer: d) Relational

9. What is the primary advantage of using NoSQL databases?
a) They provide strong ACID transactions
b) They are best suited for structured data
c) They offer horizontal scalability and flexibility
d) None of the above

Answer: c) They offer horizontal scalability and flexibility

10. How is NoSQL commonly used in the industry?
    a) For handling transactions in financial systems
    b) For storing and analyzing unstructured data
    c) For building traditional relational databases
    d) None of the above
    Answer: b) For storing and analyzing unstructured data

11. What is one disadvantage of NoSQL databases compared to SQL databases?
    a) Limited support for scalability
    b) Inability to handle complex queries
    c) Lack of transactional support
    d) None of the above
    Answer: c) Lack of transactional support

12. Which of the following is a characteristic of NewSQL databases?
    a) They are based on the relational model and SQL language.
    b) They are schema-less and use flexible data models.
    c) They are primarily used for handling unstructured data.
    d) None of the above
    Answer: a) They are based on the relational model and SQL language.

13. What is the primary focus of NewSQL databases?
    a) Horizontal scalability
    b) Schema flexibility
    c) Strong ACID transactions
    d) None of the above
    Answer: c) Strong ACID transactions

14. How do NoSQL databases typically handle scalability?
    a) By vertically scaling hardware resources
    b) By adding more nodes to a distributed cluster
    c) By optimizing SQL queries
    d) None of the above
    Answer: b) By adding more nodes to a distributed cluster

15. Which of the following statements is true about NoSQL databases?
    a) They are limited to handling structured data only.
    b) They cannot provide strong consistency guarantees.
    c) They are not suitable for high-performance applications.
    d) None of the above
    Answer: b) They cannot provide strong consistency guarantees.

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    c) SQLite, MariaDB, SQL Server
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    d) None of the above
    Answer: c) Scalability and flexibility

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    c) SQL databases support horizontal scaling, while NoSQL databases support vertical scaling
    d) None of the above

Answer: a) SQL databases use a fixed schema, while NoSQL databases are schema-less or have flexible schemas

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    Answer: d) Relational

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b) They are best suited for structured data
c) They offer horizontal scalability and flexibility
d) None of the above
Answer: c) They offer horizontal scalability and flexibility

25. How is NoSQL commonly used in the industry?
a) For handling transactions in financial systems
b) For storing and analyzing unstructured data
c) For building traditional relational databases
d) None of the above
Answer: b) For storing and analyzing unstructured data

26. What is MongoDB primarily used for?
a) Managing structured data
b) Managing unstructured and semi-structured data
c) Performing complex SQL queries
d) None of the above
Answer: b) Managing unstructured and semi-structured data

27. What is the necessity of MongoDB?
a) It provides strong ACID transactions
b) It offers schema flexibility and horizontal scalability
c) It is optimized for handling structured data
d) None of the above
Answer: b) It offers schema flexibility and horizontal scalability

28. Which of the following is a characteristic of MongoDB?
a) Fixed schema
b) Vertical scalability
c) Document-oriented storage
d) None of the above
Answer: c) Document-oriented storage

29. What are some common terms used in MongoDB and RDBMS?
a) Table and Row
b) Collection and Document
c) Column and Index

d) None of the above
Answer: b) Collection and Document

30. How does MongoDB handle relationships between data?
a) Through foreign key constraints
b) Through embedding and referencing
c) Through JOIN operations
d) None of the above
Answer: b) Through embedding and referencing

31. What are the primary data types supported by MongoDB?
a) String, Integer, Boolean, Date
b) VARCHAR, INTEGER, BOOLEAN, DATE
c) Text, Number, Boolean, Date
d) None of the above
Answer: a) String, Integer, Boolean, Date

32. Which of the following is NOT a valid data type in MongoDB?
a) Array
b) Object
c) Set
d) None of the above
Answer: c) Set

33. What is the default query language used in MongoDB?
a) SQL
b) MongoDB Query Language (MQL)
c) NoSQL
d) None of the above
Answer: b) MongoDB Query Language (MQL)

34. How does MongoDB handle transactions?
a) It supports multi-document transactions
b) It does not support transactions
c) It relies on external transaction managers
d) None of the above
Answer: a) It supports multi-document transactions

35. What is the primary role of indexes in MongoDB?
    a) To ensure data integrity
    b) To optimize query performance
    c) To enforce data constraints
    d) None of the above
    Answer: b) To optimize query performance

36. What is the primary advantage of using MongoDB over traditional relational databases?
    a) Better support for complex transactions
    b) Ability to handle unstructured and semi-structured data
    c) Strong schema enforcement
    d) None of the above
    Answer: b) Ability to handle unstructured and semi-structured data

37. What is the primary purpose of MongoDB?
    a) To provide a highly normalized relational database
    b) To manage unstructured and semi-structured data
    c) To enforce strict data consistency
    d) None of the above
    Answer: b) To manage unstructured and semi-structured data

38. Which of the following is NOT a characteristic of MongoDB?
    a) Schema-less
    b) Document-oriented
    c) Vertical scalability
    d) None of the above
    Answer: c) Vertical scalability

39. What is the significance of BSON in MongoDB?
    a) It is the default storage engine
    b) It is a binary representation of JSON documents used in MongoDB
    c) It is a query language for MongoDB
    d) None of the above
    Answer: b) It is a binary representation of JSON documents used in MongoDB

40. How does MongoDB ensure data durability?

a) By replicating data across multiple nodes
b) By compressing data before storage
c) By encrypting data at rest
d) None of the above
Answer: a) By replicating data across multiple nodes

41. What is the primary advantage of MongoDB's flexible schema?
a) Improved query performance
b) Easier data modeling and schema evolution
c) Stronger data consistency
d) None of the above
Answer: b) Easier data modeling and schema evolution

42. What is the primary role of MongoDB's WiredTiger storage engine?
a) To optimize query execution
b) To manage data storage on disk
c) To enforce data consistency
d) None of the above
Answer: b) To manage data storage on disk

43. How does MongoDB handle relationships between data?
a) Through JOIN operations
b) Through embedding and referencing
c) Through foreign key constraints
d) None of the above
Answer: b) Through embedding and referencing

44. What is the purpose of the MongoDB Query Language (MQL)?
a) To manipulate and retrieve data from MongoDB
b) To perform complex SQL queries
c) To interact with relational databases
d) None of the above
Answer: a) To manipulate and retrieve data from MongoDB

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Answer: a) It supports multi-document transactions

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d) None of the above
Answer: b) To optimize query performance

47. What is the primary advantage of using MongoDB over traditional relational databases?
a) Better support for complex transactions
b) Ability to handle unstructured and semi-structured data
c) Strong schema enforcement
d) None of the above
Answer: b) Ability to handle unstructured and semi-structured data

48. What is the primary purpose of MongoDB?
a) To provide a highly normalized relational database
b) To manage unstructured and semi-structured data
c) To enforce strict data consistency
d) None of the above
Answer: b) To manage unstructured and semi-structured data

49. Which of the following is NOT a characteristic of MongoDB?
a) Schema-less
b) Document-oriented
c) Vertical scalability
d) None of the above
Answer: c) Vertical scalability

50. What is the significance of BSON in MongoDB?
a) It is the default storage engine
b) It is a binary representation of JSON documents used in MongoDB
c) It is a query language for MongoDB
d) None of the above

Answer: b) It is a binary representation of JSON documents used in MongoDB

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    d) None of the above
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    d) None of the above
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    c) Strong schema enforcement
    d) None of the above
    Answer: b) Ability to handle unstructured and semi-structured data

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d) None of the above
Answer: a) By replicating data across multiple nodes

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    Answer: b) To manage data storage on disk

76. What is R programming primarily used for?
    a) Web development
    b) Statistical computing and graphics
    c) Mobile app development
    d) None of the above
    Answer: b) Statistical computing and graphics

77. Which of the following is NOT an arithmetic operator in R?

a) +
b) *
c) %
d) /
Answer: c) %

78. What is the purpose of control statements in R programming?
a) To perform mathematical operations
b) To control the flow of execution based on conditions
c) To create graphical outputs
d) None of the above
Answer: b) To control the flow of execution based on conditions

79. What is the syntax for defining a function in R?
a) func_name(arguments) { body }
b) function_name { arguments -> body }
c) function_name(arguments) { body }
d) None of the above
Answer: c) function_name(arguments) { body }

80. Which data structure in R is used to store elements of the same data type?
a) Vector
b) Matrix
c) List
d) Data frame
Answer: a) Vector

81. What is a matrix in R?
a) A one-dimensional array
b) A two-dimensional array with rows and columns
c) A collection of key-value pairs
d) None of the above
Answer: b) A two-dimensional array with rows and columns

82. What is a list in R?
a) An ordered collection of elements of the same data type
b) An unordered collection of elements of different data types
c) A matrix with only one row or column

d) None of the above
Answer: b) An unordered collection of elements of different data types

83. Which data structure in R is used to store tabular data with rows and columns?
a) Matrix
b) List
c) Data frame
d) Vector
Answer: c) Data frame

84. What is a factor in R?
a) A data structure used to store continuous numeric values
b) A categorical variable that can take on a limited number of distinct values
c) A type of loop in R programming
d) None of the above
Answer: b) A categorical variable that can take on a limited number of distinct values

85. How can you read input from the keyboard in R?
a) Using the scan() function
b) Using the input() function
c) Using the read.console() function
d) None of the above
Answer: a) Using the scan() function

86. What is the purpose of the plot() function in R?
a) To create data frames
b) To generate random numbers
c) To create graphical plots
d) None of the above
Answer: c) To create graphical plots

87. Which function in R is used to apply a function over the margins of an array?
a) apply()
b) sapply()

c) lapply()
d) None of the above
Answer: a) apply()

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    d) None of the above
    Answer: a) apply()

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    a) Web development
    b) Statistical computing and graphics
    c) Mobile app development
    d) None of the above
    Answer: b) Statistical computing and graphics

101. Which of the following is NOT a valid R data structure?
    a) Array
    b) DataFrame
    c) Stack
    d) Queue
    Answer: d) Queue

102. What is the purpose of the if statement in R?
    a) To define functions
    b) To create loops
    c) To make decisions based on conditions
    d) None of the above
    Answer: c) To make decisions based on conditions

103. In R, what does the else statement do?

a) It defines an alternative condition for the if statement
b) It terminates the current loop iteration
c) It specifies the start of a new function
d) None of the above
Answer: a) It defines an alternative condition for the if statement

104. What is the purpose of the for loop in R?
a) To execute a block of code repeatedly
b) To create a function
c) To define a vector
d) None of the above
Answer: a) To execute a block of code repeatedly

105. What does the break statement do in R?
a) It exits the current loop prematurely
b) It continues with the next iteration of the loop
c) It defines the end of a function
d) None of the above
Answer: a) It exits the current loop prematurely

106. What does the next statement do in R?
a) It exits the current loop prematurely
b) It continues with the next iteration of the loop
c) It defines the end of a function
d) None of the above
Answer: b) It continues with the next iteration of the loop

107. Which of the following is a valid way to define a function in R?
a) define my_function() { ... }
b) function my_function() { ... }
c) def my_function() { ... }
d) None of the above
Answer: b) function my_function() { ... }

108. What does the return statement do in R functions?
a) It prints a value to the console
b) It terminates the function and returns a value
c) It defines the start of the function

d) None of the above
Answer: b) It terminates the function and returns a value

109. In R, what does the %*% operator do?
a) Element-wise multiplication of matrices
b) Matrix multiplication
c) Scalar multiplication
d) None of the above
Answer: b) Matrix multiplication

110. How do you access the first element of a vector in R?
a) By using the first() function
b) By using indexing [1]
c) By using the head() function
d) None of the above
Answer: b) By using indexing [1]

111. What function is used to create a list in R?
a) create_list()
b) list()
c) new_list()
d) None of the above
Answer: b) list()

112. What function is used to convert a list to a data frame in R?
a) list_to_df()
b) to_df()
c) as.data.frame()
d) None of the above
Answer: c) as.data.frame()

113. Which of the following statements is true about factors in R?
a) Factors are used to represent continuous data
b) Factors are internally stored as character vectors
c) Factors are used to represent categorical data
d) None of the above
Answer: c) Factors are used to represent categorical data

114. How can you write data to a file in R?
a) Using the write() function
b) Using the save() function
c) Using the write.csv() function
d) None of the above
Answer: c) Using the write.csv() function

115. What function is used to read data from a CSV file in R?
a) load()
b) read.csv()
c) import()
d) None of the above
Answer: b) read.csv()

116. What does the plot() function do in R?
a) It creates histograms
b) It creates scatter plots
c) It creates bar charts
d) None of the above
Answer: b) It creates scatter plots

117. What function is used to apply a function to each element of a list or vector in R?
a) map()
b) apply()
c) sapply()
d) None of the above
Answer: c) sapply()

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b) Statistical computing and graphics
c) Mobile app development
d) None of the above
Answer: b) Statistical computing and graphics

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a) Array

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c) Stack
d) Queue
Answer: d) Queue

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b) To create a function
c) To define a vector
d) None of the above
Answer: a) To execute a block of code repeatedly

123. What does the break statement do in R?
a) It exits the current loop prematurely
b) It continues with the next iteration of the loop
c) It defines the end of a function
d) None of the above
Answer: a) It exits the current loop prematurely

124. What does the next statement do in R?
a) It exits the current loop prematurely
b) It continues with the next iteration of the loop
c) It defines the end of a function
d) None of the above

Answer: b) It continues with the next iteration of the loop

125. Which of the following is a valid way to define a function in R?

a) define my_function() { ... }

b) function my_function() { ... }

c) def my_function() { ... }

d) None of the above

Answer: b) function my_function() { ... }