WEEK: 0

UNSTRUCTURED DATABASE (MCQs)

Note: *First 10 questions are from structured database for knowledge verification.*

1. What is a structured database?
   A) A database that uses a flexible schema
   B) A database that organizes data in tables with fixed columns
   C) A database with no predefined schema
   D) A database optimized for unstructured data

2. Which data model is commonly associated with structured databases?
   A) Hierarchical Data Model
   B) Document Data Model
   C) Relational Data Model
   D) Object-Oriented Data Model

3. In a structured database, what is a table?
   A) A collection of related documents
   B) A set of fields that define a document
   C) A collection of related records organized in rows and columns
   D) A predefined set of attributes for a document

4. What is a primary key in the context of structured databases?
   A) A unique identifier for a document
   B) A foreign key that references another table
   C) The first column in a table
   D) A field that cannot contain null values and must be unique

5. In structured databases, what is normalization?
   A) The process of reducing data redundancy
   B) The duplication of data to improve performance
   C) The process of adding more tables to a database
   D) The removal of foreign keys

6. Which of the following SQL statements is used to retrieve data from a structured database?
   A) `SEARCH`
   B) `SELECT`
   C) `RETRIEVE`
   D) `FETCH`

7. What is the purpose of a foreign key in structured databases?
   A) To uniquely identify a record in a table
   B) To establish a relationship between tables
   C) To enforce data types in a column

D) To limit the number of records in a table

8. Which normal form ensures that there are no repeating groups of data in a table?
A) First Normal Form (1NF)
B) Second Normal Form (2NF)
C) Third Normal Form (3NF)
D) Boyce-Codd Normal Form (BCNF)

9. In a structured database, what is an index used for?
A) To store large binary data
B) To enforce data integrity constraints
C) To optimize query performance
D) To define the primary key

10. What is the primary advantage of using a structured database?
A) Flexibility in schema design
B) Efficient querying and indexing
C) Adaptability to changing data types
D) Easy storage of unstructured data

11. What is the use of the update() function in MongoDB?
A) To insert a new document
B) To modify existing documents
C) To create a new collection
D) To drop a database

12. Explain the difference between update() and updateOne() in MongoDB.
A) `updateOne()` updates a single document, while `update()` updates multiple documents.
B) There is no difference; both functions perform the same operation.
C) `update()` is used for inserting documents, while `updateOne()` is used for updating.
D) `updateOne()` is used for updating, while `update()` is used for deleting.

13. How can you update multiple documents in a collection in MongoDB?
A) Using `updateMany()`
B) Using `modifyAll()`
C) Using `updateAll()`
D) Using `alterMany()`

14. What is the purpose of the remove() function in MongoDB?
A) To remove a document from a collection
B) To delete an entire database
C) To remove a field from a document
D) To drop a collection

15. How do you delete a specific document based on a condition in MongoDB?
A) `delete()`

B) `remove()`
C) `erase()`
D) `drop()`

16. Explain the drop() function in MongoDB and its usage.
A) Drops a document from a collection
B) Drops a field from a document
C) Drops a collection
D) Drops a database

17. How can you drop a collection in MongoDB using the shell?
A) `dropCollection()`
B) `removeCollection()`
C) `deleteCollection()`
D) `db.collection.drop()`

18. What is the command to drop a database in MongoDB?
A) `db.dropDatabase()`
B) `deleteDatabase()`
C) `removeDatabase()`
D) `dropDB()`

19. Can you drop a database while connected to it in MongoDB?
A) No
B) Yes, using `db.drop()`
C) Yes, using `db.remove()`
D) Yes, using `db.dropDatabase()`

20. Explain the concept of Object ID in MongoDB.
A) A unique identifier automatically assigned to each document
B) A user-defined identifier for collections
C) A reserved keyword for queries
D) A data type representing integers

21. What is a data model in the context of MongoDB?
A) A model used to represent data as tables
B) A visual representation of a database schema
C) A blueprint that defines the structure and relationships of data
D) A programming language for data manipulation

22. Which type of data model does MongoDB primarily use?
A) Relational Data Model
B) Document Data Model
C) Hierarchical Data Model
D) Network Data Model

23. In MongoDB, what is a BSON document?

A) Binary representation of a JSON-like document
B) A type of database index
C) A relational table
D) A data structure for metadata

24. What is a collection in MongoDB's data model?
A) A group of related tables
B) A set of related documents
C) A database schema
D) A predefined set of fields

25. Which term is used to represent relationships between documents in MongoDB?
A) Joins
B) Links
C) Embedding
D) Mappings

26. What is denormalization in the context of data modeling?
A) The process of normalizing data
B) The duplication of data to avoid joins
C) The removal of redundant fields
D) The normalization of document structures

27. What is the primary advantage of using a flexible schema in MongoDB's data model?
A) Improved data integrity
B) Easier enforcement of relationships
C) Faster query performance
D) Adaptability to changing requirements

28. Which of the following is a valid data type in MongoDB?
A) ENUM
B) VARCHAR
C) ARRAY
D) DECIMAL

29. In MongoDB, how is data modeling different from traditional relational databases?
A) MongoDB uses a fixed-schema approach
B) MongoDB supports multi-table joins
C) MongoDB allows dynamic schema design
D) MongoDB enforces strict normalization

30. What is the significance of the "_id" field in MongoDB documents?
A) It is a reserved keyword for queries
B) It must be manually assigned by the user
C) It is automatically generated and serves as the document's primary key
D) It is used for denormalization purposes

31. What is an unstructured database?
A) A database that uses a fixed schema
B) A database that organizes data in tables with fixed columns
C) A database with no predefined schema
D) A database optimized for structured data

32. Which type of data model is commonly associated with unstructured databases?
A) Hierarchical Data Model
B) Document Data Model
C) Relational Data Model
D) Object-Oriented Data Model

33. In an unstructured database, what is a document?
A) A collection of related records
B) A set of fields that define a record
C) A single piece of data with a flexible structure
D) A predefined set of attributes for a record

34. What is a key-value pair in the context of unstructured databases?
A) A unique identifier for a document
B) A combination of two primary keys
C) A field that cannot contain null values
D) A way to represent data as a pair of values

35. Which of the following NoSQL databases is commonly used for handling unstructured data?
A) MongoDB
B) Cassandra
C) Redis
D) CouchDB

36. In unstructured databases, what is schema flexibility?
A) The ability to enforce strict data types
B) The requirement for a predefined schema
C) The ability to accommodate evolving data structures
D) The process of normalizing data

37. What is the primary advantage of using an unstructured database for certain types of data?
A) Rigorous schema enforcement
B) Better support for complex transactions
C) Flexibility to handle diverse and evolving data types
D) Improved query performance

38. Which query language is commonly used in unstructured databases?
A) SQL
B) CQL (Cassandra Query Language)
C) NoSQL
D) JSONQL

39. What is the purpose of sharding in unstructured databases?
A) To create backups of the database
B) To distribute data across multiple nodes
C) To enforce data integrity constraints
D) To optimize query performance

40. In unstructured databases, what is the role of a document store?
A) To store large binary data
B) To define the primary key
C) To manage documents with flexible structures
D) To enforce data consistency

41. What is a semi-structured database?
A) A database that strictly enforces a fixed schema
B) A database that organizes data in tables with flexible columns
C) A database with a mix of structured and unstructured data
D) A database optimized for key-value pairs

42. Which data model is commonly associated with semi-structured databases?
A) Hierarchical Data Model
B) Document Data Model
C) Relational Data Model
D) XML Data Model

43. What is the primary characteristic of semi-structured data in databases?
A) It adheres to a strict schema
B) It lacks any form of organization
C) It has a flexible and dynamic structure
D) It is stored in tables with fixed columns

44. Which markup language is commonly used to represent semi-structured data in databases?
A) JSON
B) HTML
C) XML
D) YAML

45. What is the significance of tags in the context of semi-structured databases?
A) They define the primary key of a document
B) They represent the metadata associated with a record
C) They provide a way to structure and organize data
D) They are used to enforce data integrity constraints

46. Which MongoDB shell is the recommended and officially supported shell for MongoDB?
A) `mongo`
B) `mongod`
C) `mongosh`
D) `shell`

47. In MongoDB, what is the purpose of the `mongod` process?
A) It is the MongoDB shell for query execution.
B) It is the MongoDB server process.
C) It is the MongoDB Compass application.
D) It is the MongoDB data import/export tool.

48. What is the default port number for MongoDB connections?
A) 27018
B) 27017
C) 27019
D) 28017

49. Which command is used to start the MongoDB shell in the command line?
A) `mongo`
B) `mongosh`
C) `shell`
D) `start-mongo`

50. What is the purpose of the `use <database>` command in the MongoDB shell?
A) To create a new database.
B) To switch to a specific database.
C) To drop a database.
D) To list all databases.

51. Which of the following commands is used to install MongoDB on a Linux system using the package manager?
A) `sudo apt-get install mongodb`
B) `yum install mongo`
C) `brew install mongodb`
D) `install-mongodb-linux`

52. What is MongoDB Compass?
A) A command-line utility for MongoDB administration.
B) A graphical user interface (GUI) for MongoDB.
C) A MongoDB driver for Node.js.
D) A MongoDB shell with enhanced features.

53. How do you enable authentication in MongoDB during the installation process?
A) It is enabled by default.
B) Modify the `auth=true` setting in the configuration file.
C) Use the `--auth` option during installation.
D) Authentication cannot be enabled during installation.

54. What is the primary purpose of MongoDB Compass?
A) To query MongoDB databases using SQL.
B) To perform backups and restores.
C) To provide a visual way to interact with and explore MongoDB data.
D) To run JavaScript functions on the server.

55. Which command is used to uninstall MongoDB on a Windows system using the command prompt?
A) `mongo uninstall`
B) `remove-mongodb`
C) `msiexec /uninstall mongodb`
D) `mongod --remove`

56. What is Studio 3T primarily used for in the context of MongoDB?
A) MongoDB server administration
B) Web development with MongoDB
C) Creating and managing MongoDB databases
D) MongoDB driver development

57. Which programming language is primarily associated with Studio 3T for MongoDB query execution?
A) JavaScript
B) Java
C) Python
D) SQL

58. What feature in Studio 3T allows users to visually design MongoDB queries without writing code?
A) Query Builder
B) Code Generator
C) Visual Query Designer
D) Query Composer

59. In Studio 3T, what does the "Aggregation Editor" primarily assist users with?
A) Creating and executing SQL queries
B) Designing and testing MongoDB aggregation pipelines
C) Managing database indexes
D) Importing and exporting data in various formats

60. What is the primary advantage of using Studio 3T over the MongoDB shell for certain tasks?
A) Studio 3T supports only structured databases.
B) Studio 3T offers a more user-friendly and visual interface.
C) Studio 3T does not require authentication.
D) Studio 3T is faster in query execution.