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(FOR THE CANDIDATES ADMITTED **23UCS6E6**

DURING THE ACADEMIC YEAR 2023 ONLY) **REG.NO. :**

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : MAY-2026

BSc COMPUTER SCIENCE(SF) **MAXIMUM MARKS: 75**

SEMESTER: VI **TIME : 3 HOURS**

PART - III

23UCS6E6 – MONGO DB

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.K1)

1. The process of discovering patterns and insights from large datasets is known as:
   (a) Data Warehousing (b) Query Processing (c) Data Mining (d) Transaction Processing
2. Which command-line tool is used to import data from a CSV or JSON file into a MongoDB collection?
   (a) mongod (b) mongorestore (c) mongoimport (d) mongodump
3. Which operator selects documents where a field value is greater than a specified value?
   (a) $lt (b) $gt (c) $exists (d) $regex
4. Which MongoDB method is used to create a single-field ascending index on the 'name' field in a collection called 'students'?
   (a) db.students.createIndex({name: -1}) (b) db.students.createIndex({name: 1})
   (c) db.students.dropIndex({name: 1}) (d) db.students.getIndexes()
5. In MongoDB, what mechanism provides data redundancy and increased data availability by maintaining multiple copies of data across different servers?
   (a) Sharding (b) Indexing (c) Aggregation Pipeline (d) Replica Sets

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES (K2)

6. State the uses SQL and NO-SQL
7. List any two advantages of MongoDB.
8. What is the use of $project operator.
9. Write the purpose of emit function?
10. Define Data Sharding.

SECTION – B (5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. a) Discuss Indexing and Hashing in NoSQL.

(OR)

b) Apply concurrency control mechanisms in NoSQL transaction processing to prevent lost updates during distributed writes

12. a) Describe the steps for MongoDB driver installation and basic server configuration.

(OR)

b) Explain the process of parsing CSV and JSON files for data extraction before importing into MongoDB.

(CONT…2)

13. a) Discuss the purpose of the $gt and $lt operators while querying array fields in MongoDB. Provide a examples**.**

(OR)

b) Paraphrase the purpose of the $exists and $regex operators while querying array fields in MongoDB. Provide a simple example for each

14. a) Compare and contrast Text Indexes with Regular Expression (Regex) searches in MongoDB

(OR)

b) Describe the Security model Role-Based Access Control (RBAC)

15. a) Illustrate the process of data sharding in MongoDB.

(OR)

b) Discuss two key MongoDB data security measures and their impact on performance.

SECTION – C (5 X 8 = 40 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.(K4 (Or) K5)

16. a) Discuss the NoSQL Database types with a suitable example.

(OR)

b) Examine the NoSQL design parameters with an example.

17. a) Compare MongoDB and RDBMS with a table highlighting at least 5 differences.

(OR)

b) Detail the MongoDB CRUD operations and provide example commands for Database Creation, Read, Update, and Delete**.**

18. a) Discuss the usage of $update, $set, $unset with syntax and example.

(OR)

b) Describe the MongoDB Aggregation Pipeline and explain the function of the $match, $unwind, and $group operators within this pipeline.

19. a) Explain MongoDB MapReduce with syntax and an example for text processing of a large dataset.

(OR)

b) Analyze the end-to-end process of Map-Reduce in MongoDB for processing large datasets. Include a case study to calculate total sales per product.

20. a) Examine the MongoDB replica sets for high availability, including user management, replication mechanics, and failover. Compare with standalone servers.

(OR)

b) Analyze MongoDB performance optimization strategies including data sharding and resource utility in large-scale deployments.

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Ethical paper