

(2½ Hours)

[Total Marks: 75]

- N. B.: (1) **All** questions are **compulsory**.
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
 (3) Answers to the **same question** must be **written together**.
 (4) Numbers to the **right** indicate **marks**.
 (5) Draw **neat labeled diagrams** wherever **necessary**.
 (6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt any three of the following:** 15
 - a. Explain the three Vs of Big Data.
 - b. Briefly explain the CAP theorem.
 - c. What is MongoDB Design Philosophy? Explain.
 - d. Differentiate between SQL and NoSQL Databases.
 - e. Write a short note on Non-Relational Approach.
 - f. Discuss the various applications of Big Data.

2. **Attempt any three of the following:** 15
 - a. Explain the Capped Collection.
 - b. What are the various tools available in MongoDB? Explain.
 - c. Discuss the points to be considered while Importing data in a Shared environment.
 - d. Explain the concept Inserting by Explicitly Specifying `_id`.
 - e. Discuss Indexes and its types.
 - f. Write a short note on Data Distribution Process.

3. **Attempt any three of the following:** 15
 - a. What is Wired Tiger Storage Engine?
 - b. List and explain the MongoDB limitations.
 - c. Explain the hardware requirements for MongoDB.
 - d. Write a short note on GridFS.
 - e. How are read and write operations performed in MongoDB?
 - f. Discuss how data is written using Journaling.

4. **Attempt any three of the following:** 15
 - a. Diagrammatically explain the Spark architecture.
 - b. Explain the concept of Oracle 12c “in-Memory Databases”.
 - c. What is jQuery? Explain its features.
 - d. Discuss the concept of Disk Economics.
 - e. Explain the jQuery DOM Filter Methods.
 - f. Write a short note on jQuery Event Handling.

5. **Attempt any three of the following:** 15
 - a. Explain JSON data types.
 - b. Discuss JSON schema with validation libraries.
 - c. Differentiate between JSON and XML.
 - d. How do we do encoding and decoding JSON in Python?
 - e. What is JSON Grammar? Explain.
 - f. Write a short note on Persisting JSON.