

(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

- Explain the three Vs of Big Data.
- Briefly explain the CAP theorem.
- What is MongoDB Design Philosophy? Explain.
- Differentiate between SQL and NoSQL Databases.
- Write a short note on Non-Relational Approach.
- Discuss the various applications of Big Data.

**2. Attempt any three of the following:**

15

- Explain the Capped Collection.
- What are the various tools available in MongoDB? Explain.
- Discuss the points to be considered while Importing data in a Shared environment.
- Explain the concept Inserting by Explicitly Specifying `_id`.
- Discuss Indexes and its types.
- Write a short note on Data Distribution Process.

**3. Attempt any three of the following:**

15

- What is Wired Tiger Storage Engine?
- List and explain the MongoDB limitations.
- Explain the hardware requirements for MongoDB.
- Write a short note on GridFS.
- How are read and write operations performed in MongoDB?
- Discuss how data is written using Journaling.

**4. Attempt any three of the following:**

15

- Diagrammatically explain the Spark architecture.
- Explain the concept of Oracle 12c “in-Memory Databases”.
- What is jQuery? Explain its features.
- Discuss the concept of Disk Economics.
- Explain the jQuery DOM Filter Methods.
- Write a short note on jQuery Event Handling.

**5. Attempt any three of the following:**

15

- Explain JSON data types.
- Discuss JSON schema with validation libraries.
- Differentiate between JSON and XML.
- How do we do encoding and decoding JSON in Python?
- What is JSON Grammar? Explain.
- Write a short note on Persisting JSON.