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.