

(Time: 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 aspects of data i) Data at rest ii) Data in motion iii) Data in many forms.
 - b. List the Big data sources and also explain the challenges of big data.
 - c. Explain Brewer's theorem along with a neat diagram.
 - d. How consistency can be implemented at both read and write operation levels explain.
 - e. List the categories of NoSQL databases. Also explain the ways in which MongoDB is different from SQL.
 - f. What is NoSQL? Explain the advantages of NoSQL databases.
2. **Attempt any three of the following:** 15
 - a. Explain `_id`, capped collection and Binary JavaScript Object Notation (BSON).
 - b. What is a polymorphic schema? Explain the various reasons for using a polymorphic schema.
 - c. How can you create a collection explicitly? Explain about selector and projector with example.
 - d. What is the use of `findOne()` method? Briefly explain about `explain()` function.
 - e. Explain Master Slave Replication with a neat diagram.
 - f. Explain the components of a sharded cluster.
3. **Attempt any three of the following:** 15
 - a. Write a short note on WiredTiger storage engine.
 - b. Explain the concept of GridFS – The MongoDB File System.
 - c. What is sharding? List and explain the sharding limitations.
 - d. Explain MongoDB limitations from security perspective. Also give an overview about Read and Write limitations.
 - e. Write a short note on Deployment in MongoDB.
 - f. What are the tips need to be considered when coding with the MongoDB database.
4. **Attempt any three of the following:** 15
 - a. Explain about TimesTen In-Memory Database with a neat diagram.
 - b. Explain about Solid State Disk.
 - c. Discuss the oracle 12c In-Memory Database architecture with a neat diagram.
 - d. What is jQuery? Explain jQuery element selector, id selector and class selector with example.
 - e. What is an Event? Explain with syntax `fadeIn()` and `fadeOut()` jQuery methods.
 - f. Explain the features supported by jQuery.

[Turn over...]

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5. Attempt any three of the following:

15

- a. What is the use of stringify method? Explain with syntax.
 - b. Explain the six members of the web storage Interface.
 - c. Explain the structure of Hypertext Transfer Protocol (HTTP) – Request.
 - d. Explain the JSON Grammar.
 - e. Give an overview about JavaScript Object Notation (JSON). Also explain about JSON tokens.
 - f. Explain about JSON parsing with syntax.
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