TY B.SC IT sem. v

NOV-2022

Paper / Subject Code: 53707 / Next Generation Technologies

(Time: 21/2 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.
- 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:

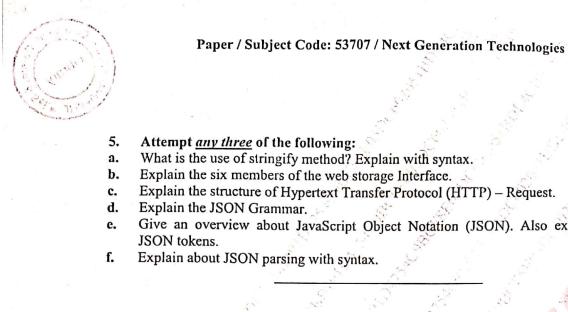
15

- 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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- Explain the structure of Hypertext Transfer Protocol (HTTP) Request.
- Give an overview about JavaScript Object Notation (JSON). Also explain about

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