

(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

- What is Big Data? What are the different sources of Big Data?
- Compare ACID Vs BASE.
- With the help of a neat diagram explain, the CAP theorem.
- What are the advantages and disadvantages of NoSQL databases?
- What are the different categories of NoSQL database? Explain each with an example.
- What are the different challenges Big Data poses?

2. Attempt any three of the following:

15

- Consider a Collection users containing the following fields

```
{
  id: ObjectId(),
  FName: "First Name",
  LName: "Last Name",
  Age: 30,
  Gender: "M",
  Country: "Country"
}
```

Where Gender value can be either "M" or "F" or "Other".

Country can be either "UK" or "India" or "USA".

Based on above information write the **MongoDB** query for the following.

- Update the country to UK for all female users.
 - Add the new field company to all the documents.
 - Delete all the documents where Gender = 'M'.
 - Find out a count of female users who stay in either India or USA.
 - Display the first name and age of all female employees.
- Write the Mongo dB command to create the following with an example:

(i) Database	(ii) Collection	(iii) Document
(iv) Drop Collection	(v) Drop Database	(vi) Index
 - Write a short note on Capped collection.
 - List and explain the different conditional operators in MongoDB.
 - Explain the two ways MongoDB enables distribution of the data in Sharding.
 - List and explain the 3 core components in the MongoDB package.

[TURN OVER]

3. Attempt any three of the following:**15**

- List and explain the limitations of Sharding.
- What is Data Storage engine? Which is the default storage engine in MongoDB? Also compare MMAP and Wired Tiger storage engines.
- “With the rise of the Smartphone, it’s becoming very common to query for things near a current location”*. Explain the different indexes used by MongoDB to support such location-based queries.
- What is Journaling? Explain the importance of Journaling with the help of a neat diagram.
- Write a short note on Replication Lag.
- Explain “*GridFS – The MongoDB File System*” with the help of a neat diagram.

4. Attempt any three of the following:**15**

- Explain TimesTen Architecture with the help of a neat diagram.
- Write a jQuery code to change text contents of the elements on button click.
- Explain how we can create our own custom event in jQuery with an example.
- What is Ajax? What is the use of Ajax? Explain how Ajax can be used with jQuery.
- Explain how to add and remove elements to DOM in jQuery with an example
- Write a jQuery code to add a CSS class to the HTML elements.

5. Attempt any three of the following:**15**

- Explain the use of json_encode and json_decode function with an example.
- List and explain any 5 XMLHttpRequest Event Handlers used for Monitoring the Progress of the HTTP Request.
- What is the use of Stringify function? What are the different parameters that can be passed in Stringify function? Explain with an example.
- Write a short note on JSON Arrays.
- List and explain the different methods of a Cradle Wrapper.
- “JSON is better than XML”.Comment.