

**Mumbai University**

**November - 2018**

**B.Sc.IT: SEMESTER – V**

**(QUESTION PAPER)**

**[CBCS – Choice Based]**

**NEXT**

**GENERATION**

**TECHNOLOGIES**

**Time:** 2 ½ Hours

**Total Marks:** 75

**NOTE:**

- (1) All questions (Q.1 to Q.5) are compulsory.
- (2) Figures on the right indicate total marks. All sub-questions carry equal marks.
- (3) Write the question numbers clearly as mentioned in the Question Paper.
- (4) Mixing of sub-questions is not allowed.
- (5) Draw diagrams and give examples whenever necessary.
- (6) Use of calculator or any other electronic gadget is not allowed.

**Q.1 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) What is Big Data? What are the different Sources of Big Data? (5)
- (B) Compare ACID Vs BASE. (5)
- (C) With the help of a neat diagram explain, the CAP Theorem. (5)
- (D) What are the advantages and disadvantages of NoSQL Databases? (5)
- (E) What are the different categories of NoSQL Database? Explain each with an example. (5)
- (F) What are the different Challenges Big Data Posses? (5)

**Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Consider a Collection users containing the following fields: (5)  
{  
id: ObjectID(),  
FName: "First Name",  
LName: "Last Name",  
Age: 30,  
Gender: "M",  
Country: "Country"  
}
- (B) Write the Mongo dB command to create the following with an example: (5)
  - (i) Database
  - (ii) Collection
  - (iii) Document
  - (iv) Drop Collection
  - (v) Drop Database
  - (vi) Index
- (C) Write a short note on Capped collection. (5)
- (D) List and explain the different conditional operators in MongoDB. (5)
- (E) Explain the two ways MongoDB enables Distribution of the Data in Sharding. (5)
- (F) List and explain the 3 Core Components in the MongoDB Package. (5)

# NEXT GENERATION TECHNOLOGIES

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## **Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) List and explain the limitations of Sharding. (5)
- (B) What is Data Storage Engine? Which is the Default Storage Engine in MongoDB? Also compare MMAP and Wired Tiger Storage Engines. (5)
- (C) "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. (5)
- (D) What is Journaling? Explain the importance of Journaling with the help of a neat diagram. (5)
- (E) Write a short note on Replication Lag. (5)
- (F) Explain "GridFS – The MongoDB File System" with the help of a neat diagram. (5)

## **Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain TimesTen Architecture with the help of a neat diagram. (5)
- (B) Write a jQuery Code to Change Text contents of the elements on Button Click. (5)
- (C) Explain how we can create our own custom event in jQuery with an example. (5)
- (D) What is Ajax? What is the use of Ajax? Explain how Ajax can be used with jQuery. (5)
- (E) Explain how to add and remove Elements to DOM in jQuery with an example. (5)
- (F) Write a jQuery Code to add a CSS Class to the HTML Elements. (5)

## **Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain the use of json\_encode and json\_decode Function with an example. (5)
- (B) List and explain any 5 XMLHttpRequest Event Handlers used for Monitoring the Progress of the HTTP Request. (5)
- (C) What is the use of Stringify Function? What are the different parameters that can be passed in Stringify Function? Explain with an example. (5)
- (D) Write a short note on JSON Arrays. (5)
- (E) List and explain the different methods of a Cradle Wrapper. (5)
- (F) "JSON is better than XML". Comment. (5)