(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** calculator is **allowed**.

1.   Attempt *any three* of the following: 15
a.   Define Big Data. Describe the various facts of Big Data.
b.   Compare and contrast ACID vs BASE.
c.   Explain the design decisions considered for MongoDB.
d.   State and explain the advantages and disadvantages of NoSQL databases.
e.   Describe the categories of NoSQL databases
f.   Explain the importance of Big Data in context to its usage.

2.   Attempt *any three* of the following: 15
a.   Justify the statement : MongoDB has a schema-less architecture.
b.   Consider a MongoDB database that has "movies" collection:

```
{
    _id: ObjectId("573a1390f29313caabcd42e8"),
plot: 'A group of bandits stage a brazen train hold-up, only to find a determined posse
hot on their heels.',
genres: [ 'Short', 'Western' ],
runtime: 11,
cast: [
    'A.C. Abadie',
    "Gilbert M. 'Broncho Billy' Anderson",
    'George Barnes',
    'Justus D. Barnes'
    ],
title: 'The Great Train Robbery',
languages: [ 'English' ],
released: ISODate("1903-12-01T00:00:00.000Z"),
directors: [ 'Edwin S. Porter' ], rated: 'TV-G', awards: { wins: 1, nominations: 0, text: '1
win.' }, lastupdated: '2015-08-13 00:27:59.177000000', year: 1903,
imdb: { rating: 7.4, votes: 9847, id: 439 },
countries: [ 'USA' ],
type: 'movie',
tomatoes: {
viewer: { rating: 3.7, numReviews: 2559, meter: 75 },
fresh: 6,
critic: { rating: 7.6, numReviews: 6, meter: 100 },
rotten: 0,
lastUpdated: ISODate("2015-08-08T19:16:10.000Z")
    }
```

[Contd...

Write queries for the following:
i) Find all movies with full information from the 'movies' collection that released in the year 1893.
ii) Find all movies with full information from the 'movies' collection that have a runtime greater than 120 minutes.
iii) Find all movies with title, languages, released, directors, writers, awards, year, genres, runtime, cast, countries from the 'movies' collection in MongoDB that have at least one nomination.
iv) Retrieve all movies with title, languages, released, directors, writers, countries from the 'movies' collection in MongoDB that have a word "scene" in the title.
v) Find all movies with title, languages, released, runtime, directors, writers, countries from the 'movies' collection in MongoDB that have a runtime between 60 and 90 minutes.

c. Illustrate the use of Query Document in MongoDB.
d. Describe the Core Processes and tools of the MongoDB package.
e. Describe the role of various secondaries in MongoDB Replica Set.
f. Explain the types of indexes in MongoDB.

3. **Attempt _any three_ of the following:**   15
a. Delineate the write operations performed using Journaling.
b. Illustrate the working of following methods of GridFS: i) new_file() ii) get_version() iii) get_last_version() iv) delete() v) exists() and put()
c. Write a short note on performance monitoring of MongoDB Query.
d. Outline the limitations of MongoDB with respect to i)Sharding ii)32-bit/ 64-bit version.
e. How are Ajax requests handled in JQuery? Illustrate the use of done(), fail() and always()
f. Discuss the criteria required for determining implementation of Replica and Sharding in the MongoDB environment.

4. **Attempt _any three_ of the following:**   15
a. Draw and explain the syntax diagram of a JSON number.
b. What is the chaining of methods? Write a code snippet using chaining methods.
   With a suitable code snippet, discuss the various methods used for removing content using JQuery code.
d. With a suitable diagram explain the architecture of TimesTen.
e. How are Ajax requests handled in JQuery? Illustrate the use of done(), fail() and always()
f. What is a Plug-in? Give its usage. Create a JQuery Plug-in that logs out the value of the ID attribute for every element on the page.

5. **Attempt _any three_ of the following:**   15
a. Draw and explain the syntax diagram of a JSON number.
b. Describe the stringify method in detail.
c. JSON data can be made persistent. Justify.
d. Describe the members of Web Storage API.
e. Explain the Response properties of the xhr object.
f. Write a short note on JSONP.