

# Nirma University

## Institute of Technology

Semester End Examination (IR), February - 2022

B. Tech. in Computer Engineering, Semester-VII

IT7C4 Big Data Analytics

Roll /

Exam No.

Time: 2 Hours

Supervisor's Initial  
With Date

Total Marks: 50

**Q:1 Answer the following questions: (5 X 5) [Any Five]**

**[25]**

C01

- 1 Write down the functionality of name node and data node for running Hadoop.
- 2 Write down one line importance of following.
  - a) Application Master in YARN
  - b) yarn-site.xml
  - c) Edit Log
  - d) hdfs-site.xml
  - e) chunk size
- 3 Consider the application of healthcare analytics. Describe "volume and variety" of data generated in big data.
- 4 Define "Big Data". Share your understanding of big data for the application in parliament (government sector). Also explain how big data analytics help higher authorities in parliament to take important decisions.
- 5 Explain CAP theorem in detail. Compare NOSQL database with RDBMS.
- 6 What is record reader? What is the role of record reader in execution of map reduce program?
- 7 Explain the role of number of iterations in choice of platforms. Which platforms are most suitable for iterative nature of program?

**Q:2 Answer the following questions: (4 X 4) [Any Four]**

**[16]**

C02 Consider the following structure of 'restaurants' collection:

```
{
  "address": {
    "building": "17",
    "coord": [ -73.856077, 40.848447 ],
    "street": "Taj-street",
    "zipcode": "10462"
  },
  "borough": "Bronx",
  "cuisine": "Non-Bakery",
  "grades": [
    { "date": { "$date": 1393804800000 }, "grade": "A", "score": 2 },
    { "date": { "$date": 1378857600000 }, "grade": "A", "score": 6 },
    { "date": { "$date": 1358985600000 }, "grade": "A", "score": 10 },
    { "date": { "$date": 1322006400000 }, "grade": "A", "score": 9 },
    { "date": { "$date": 1299715200000 }, "grade": "B", "score": 14 }
  ]
}
```

```

},
"name": "Taj",
"restaurant_id": "30075445"
}

```

- 1 a. Write a MongoDB query to display all the cuisine in the collection restaurants.  
b. Write a MongoDB query to display only building number from the restaurant name for all the documents in the collection restaurant.
- 2 a. Write a MongoDB query to display grades for the past one year.  
b. Write a MongoDB query to display the fields restaurant\_id, name, borough and cuisine, but exclude the field \_id for all the documents in the collection restaurant
- 3 a. Write a query to find all the document having the cuisine start from letter 'a'.  
b. Write a MongoDB query to display the fields restaurant\_id, name, borough and zip code, but exclude the field \_id for all the documents in the collection restaurant
- 4 a. Write a MongoDB query to display all the restaurant which is in the borough Bronx.  
b. Write a query to sort all the documents according to cuisine.
- 5 a. Write a query to sort all the documents according to cuisine "Non-Bakery" and restaurant name "Taj"  
b. Write a query to sort all the documents according to restaurant\_id

**Q:3** Write down the role and responsibilities of sorting and shuffling phase in map reduce program execution by taking "word count" map reduce program. **[09]**

(03)