# SRM VALLIAMMAI ENGINEERING COLLEGE

**(An Autonomous Institution)**

SRM Nagar, Kattankulathur – 603 203.

## DEPARTMENT OF COMPUTER SCCIENCE AND ENGINEERING

## QUESTION BANK

**VII SEMESTER**

**CS8091 – Big Data Analytics**

**Regulation – 2017**

**Academic Year 2020 – 2021(Odd Semester)**

*Prepared by*

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**SUBJECT : CS8091-Big Data Analytics**

**SEM / YEAR: VII Sem/ IV Year**

## UNIT I INTRODUCTION TO BIG DATA

Evolution of Big data - Best Practices for Big data Analytics - Big data characteristics - Validating - The Promotion of the Value of Big Data - Big Data Use Cases- Characteristics of Big Data Applications - Perception and Quantification of Value -Understanding Big Data Storage - A General Overview of High-Performance Architecture - HDFS - Map Reduce and YARN - Map Reduce Programming Model

**PART – A**

| Q.No. | Questions | BT Level | Competence |
|---|---|---|---|
| 1 | What is big data? | BTL1 | Remembering |
| 2 | List the main characteristics of Big Data. | BTL1 | Remembering |
| 3 | Describe the validation methods of big data. | BTL1 | Remembering |
| 4 | Interpret the data types for Big data. | BTL2 | Understanding |
| 5 | Give the various dimensions of growth of big data? | BTL2 | Understanding |
| 6 | Discuss the types of data analytics. | BTL2 | Understanding |
| 7 | What is the need for a distributed file system | BTL1 | Remembering |
| 8 | Define Map Reduce model? | BTL1 | Remembering |
| 9 | Discuss the storage considerations of big data. | BTL2 | Understanding |
| 10 | List the phases of Map Reduce algorithm. | BTL1 | Remembering |
| 11 | Define HDFS. | BTL1 | Remembering |
| 12 | Express how Map-Reduce computation executes? | BTL2 | Understanding |
| 13 | Illustrate Reduce function. | BTL3 | Applying |
| 14 | Analyze why is HDFS preferred over RDBMS? | BTL4 | Analyzing |
| 15 | Formulate the resource management framework of YARN. | BTL6 | Creating |
| 16 | Assess the components of Hadoop framework. | BTL5 | Evaluating |
| 17 | How big data is generated how they are managed in the ecosystem projects for processing. | BTL6 | Creating |
| 18 | Infer how can you manage compute node failures in hadoop? | BTL4 | Analyzing |
| 19 | Judge why the partitions are shuffled in map reduce? | BTL5 | Evaluating |
| 20 | Why does one choose analytical system over conventional system? | BTL6 | Creating |

| | PART – B | | |
|---|---|---|---|
| **1** | List the main characteristics of big data architecture with a neat schematic diagram.(13) | **BTL1** | **Remembering** |
| **2** | Explain in detail about the challenges of data analytics in conventional system(13) | **BTL4** | **Analyzing** |
| **3** | How would you show your understanding of the tools, trends and technology in big data?(13) | **BTL3** | **Applying** |
| **4** | i. Recommend the best practices in Big data analytics.(6)<br>ii. Summarize the techniques used in Big data Analytics. (7) | **BTL4** | **Evaluating** |
| **5** | i. Examine the promotion of the value of big data.(6)<br>ii. Discover the trends and technology in big data (7) | **BTL3** | **Applying** |
| **6** | Describe in detail about 5v‟s of big data. (13) | **BTL1** | **Remembering** |
| **7** | Discuss the use of Big Data Analytics in Business with suitable real world example.(13) | **BTL2** | **Understanding** |
| **8** | i. Generalize the list of tools related to Hadoop.(6)<br>ii. Prepare the list of works done by Hadoop working model.(7) | **BTL 6** | **Creating** |
| **9** | Summarize the features of Apache Hadoop in detail with diagram as necessary.(13) | **BTL2** | **Understanding** |
| **10** | i. Discuss the storage system of big data in detail(5)<br>ii. Summarize HDFS in detail.(8) | **BTL2** | **Understanding** |
| **11** | Explain the complexity theory for Map-Reduce? What is reducer size and replication rate (13) | **BTL4** | **Analyzing** |
| **12** | Assess the significances Hadoop distributed file systems and its application. (13) | **BTL5** | **Evaluating** |
| **13** | Describe Map Reduce framework in detail. Draw the architectural diagram for physical organization of compute nodes(13) | **BTL1** | **Remembering** |
| **14** | i. Identify the features of Hadoop and explain the functionalities of Hadoop cluster?(7)<br>ii. Describe briefly about Hadoop input and output and write a note on data integrity?(6) | **BTL1** | **Remembering** |

| | PART – C | | |
|---|---|---|---|
| **1** | Generalize the characteristics of big data applications and explain how the big data use cases leverages the benefits and values.(15) | **BTL6** | **Creating** |
| **2** | Summarize the significances of MapReduce and discuss about Hadoop distributed file system architecture with neat diagram (15) | **BTL5** | **Evaluating** |
| **3** | Consider a collection of literature survey made by a researcher in the form of a text document with respect to cloud and big data analytics. Using Hadoop and Map Reduce , write a program to count the occurrence of pre dominant key words (15) | **BTL5** | **Evaluating** |
| **4** | Analyze the NameNode recovery process. What will happen with a NameNode that doesn‟t have any data? (15) | **BTL4** | **Analyzing** |

## UNIT II CLUSTERING AND CLASSIFICATION

Advanced Analytical Theory and Methods: Overview of Clustering - K-means - Use Cases - Overview of the Method - Determining the Number of Clusters - Diagnostics - Reasons to Choose and Cautions .- Classification: Decision Trees - Overview of a Decision Tree - The General Algorithm - Decision Tree Algorithms - Evaluating a Decision Tree - Decision Trees in R - Naïve Bayes - Bayes,, Theorem - Naïve Bayes Classifier.

**PART – A**



| Q.No. | Question | BT Level | Competence |
|---|---|---|---|

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|---|---|---|---|
| **1** | Define clustering | **BTL 1** | **Remembering** |
| **2** | How can the initial number of clusters for k-means algorithm be estimated? | **BTL3** | **Applying** |
| **3** | Can you Pick K in a K-Means Algorithm? | **BTL 4** | **Analyzing** |
| **4** | Give the algorithm for hierarchical clustering. | **BTL2** | **Understanding** |
| **5** | Point out the conclusions drawn from choosing clustroid? | **BTL4** | **Analyzing** |
| **6** | Compare and contrast the relationship between centroids and clustering | **BTL5** | **Evaluating** |
| **7** | Generalize the initialization of K-Means algorithm? | **BTL6** | **Creating** |
| **8** | Define Bayes Theorem | **BTL 1** | **Remembering** |
| **9** | Interpret the number of clusters in k means algorithm. | **BTL2** | **Understanding** |
| **10** | What is decision tree? | **BTL 1** | **Remembering** |
| **11** | Examine the use of object Attributes. | **BTL3** | **Applying** |
| **12** | What is unit of measure? | **BTL 1** | **Remembering** |
| **13** | Express decision tree algorithm. | **BTL2** | **Understanding** |
| **14** | Define metoids. | **BTL1** | **Remembering** |
| **15** | Interpret the idea of Customer segmentation. | **BTL 2** | **Understanding** |
| **16** | Describe the prediction trees. | **BTL2** | **Understanding** |
| **17** | Analyze how Bayes theorem can be extended to become Naïve Bayes Classifier. | **BTL4** | **Analyzing** |
| **18** | Define CART and Gini Diversity Index. | **BTL 1** | **Remembering** |
| **19** | Point out the applications of Naïve bayes classifier. | **BTL4** | **Analyzing** |
| **20** | Illustrate Naïve Bayes theorem | **BTL3** | **Applying** |
| | **PART – B** | | |
| **1** | Discuss about the K-means clustering algorithm with an example.(13) | **BTL2** | **Understanding** |
| **2** | Examine how the data is processed in BFR Algorithm(13) | **BTL1** | **Remembering** |
| **3** | List the main features of GRGPF Algorithm and explain it?(13) | **BTL1** | **Remembering** |
| **4** | Summarize the hierarchical clustering in Euclidean and non-Euclidean Spaces with its efficiency?(13) | **BTL2** | **Applying** |
| **5** | Describe the various hierarchical methods of cluster analysis. (13) | **BTL2** | **Evaluating** |
| **6** | Explain the different hierarchical clustering techniques. (13) | **BTL4** | **Analyzing** |
| **7** | Given a one dimensional dataset {1, 5, 8, 10, 2} use the agglomerative clustering algorithms with the complete link with Euclidean distance to establish a hierarchical grouping | **BTL6** | **Creating** |

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|---|---|---|---|
| | relationship. By using the maximal lifetime as the cutting threshold, how many clusters are there? What is their membership in each cluster? (6)<br>ii. Interpret the clustering in non-Euclidean space with example. (7) | **BTL2** | **Understanding** |
| **8** | Describe the Reasons to Choose and Cautions in detail.(13) | **BTL1** | **Remembering** |
| **9** | Demonstrate any two clustering techniques with suitable example.(13) | **BTL3** | **Applying** |
| **10** | i) Examine Decision Tree with an example.(7)<br>ii) Describe the general algorithm of decision tree.(6) | **BTL1** | **Remembering** |
| **11** | i) Explain in detail about the ID3 algorithm. (7)<br>ii) Explain the CART algorithm in detail.(6) | **BTL4** | **Analyzing** |
| **12** | Generalize the applications of Naïve Bayes algorithm.(13) | **BTL 6** | **Creating** |
| **13** | Illustrate in detail about evaluation of decision tree (13) | **BTL3** | **Applying** |
| **14** | Explain in detail about Naïve Bayes Theorem, Classifier, Smoothing and Diagnostics. (13) | **BTL4** | **Evaluating** |
| | **PART – C** | | |
| **1** | Use the k-means algorithm and Euclidean distance to cluster the following 8 examples into 3 clusters:A1=(2,10),A2=(2,5),A3=(8,4),A4=(5,8),A5=(7,5),A6=(6,4),A7=(1,2),A8=(4,9).Suppose that the initial seeds(centers of each cluster) are A1,A4 and A7.Run the k-means algorithm for 1 epoch only. At the end of this epoch show<br>(i) The new clusters (5)<br>(ii) The centers of the new clusters (6)<br>(iii) How many more iterations are needed to coverage? Draw the result for each epoch. (4) | **BTL5** | **Evaluating** |
| **2** | Develop decision tree with an example to predict whether customers will buy a product(15) | **BTL 6** | **Creating** |
| **3** | Explain in detail about evaluate the decision tree algorithm(15) | **BTL5** | **Evaluating** |
| **4** | Analyze the two methods of using the naïve Bayes classifier in R with examples.(15) | **BTL 4** | **Analyzing** |

## UNIT III ASSOCIATION AND RECOMMENDATION SYSTEM

Advanced Analytical Theory and Methods: Association Rules - Overview - Apriori Algorithm - Evaluation of Candidate Rules - Applications of Association Rules - Finding Association& finding similarity - Recommendation System: Collaborative Recommendation- Content Based Recommendation - Knowledge Based Recommendation- Hybrid Recommendation Approaches.

**PART – A**

| Q.No. | Question | BT Level | Competence |
|---|---|---|---|
| **1** | Define apriori algorithm | **BTL1** | **Remembering** |
| **2** | State the use of association rules in data mining | **BTL1** | **Remembering** |
| **3** | Define market basket analysis | **BTL1** | **Remembering** |

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|---|---|---|---|
| **4** | Interpret the idea behind association rule? | **BTL2** | **Understanding** |
| **5** | Express Candidate rule? | **BTL2** | **Understanding** |
| **6** | Define Confidence. | **BTL1** | **Remembering** |
| **7** | Express triangular matrix method. | **BTL2** | **Understanding** |
| **8** | Show the use of main memory for item set counting. | **BTL3** | **Applying** |
| **9** | What is frequent itemset generation? | **BTL1** | **Remembering** |
| **10** | Analyze the Validation and testing methods. | **BTL4** | **Analyzing** |
| **11** | Demonstrate the approaches available to improve Apriori efficiency. | **BTL3** | **Applying** |
| **12** | Analyze how are interesting rules identified? | **BTL4** | **Analyzing** |
| **13** | Examine the broad classification of Recommendation systems? | **BTL3** | **Applying** |
| **14** | Compare the interesting rules with coincidental rules. | **BTL 5** | **Evaluating** |
| **15** | What is utility matrix? | **BTL4** | **Analyzing** |
| **16** | Examine long tail phenomenon of recommender system. | **BTL1** | **Remembering** |
| **17** | Assess the Content Based recommendation system. | **BTL 5** | **Evaluating** |
| **18** | Infer collaborative filtering system. | **BTL4** | **Analyzing** |
| **19** | Define knowledge based Recommendation. | **BTL2** | **Understanding** |
| **20** | Give the definition Hybrid recommendation. | **BTL2** | **Understanding** |

**PART – B**

| | | | |
|---|---|---|---|
| **1** | Examine the apriori algorithm for mining frequent item sets with an example. (13) | **BTL1** | **Remembering** |
| **2** | Describe the applications of association rules.(13) | **BTL1** | **Remembering** |
| **3** | Evaluate Apriori Algorithm in detail for the following super market Scenarios(13) | **BTL5** | **Evaluating** |
| **4** | Illustrate how will you evaluate a candidate rule (13) | **BTL3** | **Applying** |
| **5** | Summarize the applications of Recommendation systems.(13) | **BTL2** | **Understanding** |
| **6** | Describe the types of Recommendation systems in detail.(13) | **BTL1** | **Remembering** |
| **7** | Differentiate collaborative filtering and content based systems. (13) | **BTL2** | **Understanding** |
| **8** | Explain collaborative filtering based recommendation system. (13) | BTL4 | **Analyzing** |

| Transaction ID | Onion | Potato | Burger | Milk | Gee |
|---|---|---|---|---|---|
| T1 | 1 | 1 | 1 | 0 | 0 |
| T2 | 0 | 1 | 1 | 1 | 0 |
| T3 | 0 | 0 | 0 | 1 | 1 |
| T4 | 1 | 1 | 0 | 1 | 0 |
| T5 | 1 | 1 | 1 | 0 | 1 |
| T6 | 1 | 1 | 1 | 1 | 1 |

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| **9** | Distinguish lexical similarity and semantic similarity of documents.(13) | **BTL2** | **Understanding** |
| **10** | Describe in detail about user based nearest neighbor recommendation.(13) | **BTL1** | **Remembering** |
| **11** | Explain in detail about evaluation of candidate rule. (13) | **BTL1** | **Analyzing** |
| **12** | i) Outline the vector space model (6)<br>ii) Illustrate TF-IDF in detail. (7) | **BTL3** | **Applying** |
| **13** | i)Generalize the role of Utility matrix (7)<br>ii) lIntegrate the functions of long tail. (6) | **BTL 6** | **Creating** |
| **14** | Explain in detail about discovering features of documents. (13) | **BTL3** | **Applying** |
| | **PART – C** | | |
| **1** | A database has five transactions. Let min sup = 60% and min conf=80%<br>TID ITEMS<br>T100 Milk, Onion, Nuts, Kiwi, Egg, Yoghurt<br>T200 Dhal, Onion, Nuts, Kiwi, Egg, Yoghurt<br>T300 Milk, Apple, Kiwi, Egg<br>T400 Milk, Curd, Kiwi,Yoghurt<br>T500 Curd, Onion, Kiwi, Ice cream,Egg<br>Find all frequent item sets using Apriori method(15) | **BTL6** | **Creating** |
| **2** | Evaluate the model for Recommendation system.(15) | **BTL 5** | **Evaluating** |
| **3** | Illustrates with an example the application of the Apriori algorithm to a relatively simple case that generalizes to those used in practice. Show how to use the Apriori algorithm to generate frequent item sets and rules and to evaluate and visualize the rules.(15) | **BTL6** | **Creating** |
| **4** | Explain in detail about Hybrid and Knowledge based recommendation.(15) | **BTL 4** | **Analyzing** |

## UNIT IV STREAM MEMORY

Introduction to Streams Concepts – Stream Data Model and Architecture - Stream Computing, Sampling Data in a Stream – Filtering Streams – Counting Distinct Elements in a Stream – Estimating moments – Counting oneness in a Window – Decaying Window – Real time Analytics Platform(RTAP) applications - Case Studies - Real Time Sentiment Analysis, Stock Market Predictions. Using Graph Analytics for Big Data: Graph Analytics

**PART – A**

| Q.No. | Question | BT | Competence |
|---|---|---|---|
| **1** | Differentiate between data stream mining and traditional data mining | **BTL4** | **Analyzing** |
| **2** | Illustrate the data stream model. | **BTL3** | **Applying** |
| **3** | Express the characteristics of data model. | **BTL2** | **Understanding** |
| **4** | Point out the applications of data stream. | **BTL4** | **Analyzing** |
| **5** | Compute the surprise number (second moment) for the stream 3, 1, 4, 1, 3, 4, 2, 1, 2. What is the third moment of this stream? | **BTL1** | **Remembering** |
| **6** | Define stream computing. | **BTL1** | **Remembering** |
| **7** | Assess the need for sampling data in a stream. | **BTL5** | **Evaluating** |
| **8** | Examine filtering a data stream. | **BTL3** | **Applying** |

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|---|---|---|---|
| **9** | Define real time analysis. | **BTL1** | **Remembering** |
| **10** | List the advantages of the algorithm used in estimating moments. | **BTL1** | **Remembering** |
| **11** | Express the bloom filtering method. | **BTL2** | **Understanding** |
| **12** | Why do you think data stream management is relevant in data mining? | **BTL2** | **Understanding** |
| **13** | How oneness is counted in window? | **BTL5** | **Evaluating** |
| **14** | Show how result of the cost of exact counts doesn't match? | **BTL3** | **Applying** |
| **15** | Illustrate Decaying window. | **BTL3** | **Applying** |
| **16** | What is real time sentiment analysis? | **BTL1** | **Remembering** |
| **17** | Compare and contrast RTAP (Real Time Analytics Platform) and RTSA (Real Time Sentiment Analysis)? | **BTL5** | **Evaluating** |
| **18** | Deduce the Generic design of RTAP. | **BTL4** | **Analyzing** |
| **19** | List any 4 online tool to perform sentiment analysis | **BTL1** | **Remembering** |
| **20** | Generalize the basic components of real time stock market prediction. | **BTL6** | **Creating** |
| | **PART – B** | | |
| **1** | Describe stream data model with its architecture.(13) | **BTL1** | **Remembering** |
| **2** | Examine the sampling of data streams in detail.(13) | **BTL1** | **Remembering** |
| **3** | i. Write a short note on filtering in Data Streams.(7)<br>ii. Discuss the applications of data stream.(6) | **BTL2** | **Understanding** |
| **4** | Explain the concept of Bloom Filter with an example.(13) | **BTL4** | **Analyzing** |
| **5** | Discuss any one algorithm to count number of distinct elements in a data stream. (13) | **BTL2** | **Understanding** |
| **6** | Describe about Real time analytical platform. (13) | **BTL1** | **Remembering** |
| **7** | Identify the characteristics of a social network as a graph. (13) | **BTL3** | **Applying** |
| **8** | i. With a neat sketch, explain the architecture of data-stream management system.(6)<br>ii. Compose the algorithm used for counting distinct elements in a data stream.(7) | **BTL6** | **Creating** |
| **9** | Examine the concept of decaying window in detail.(13) | **BTL3** | **Applying** |
| **10** | i. Discuss in detail about how data analysis used in Stock Market Predictions(7)<br>ii. Describe in detail about the usage of data analysis inWeather forecasting predictions. (6) | **BTL2** | **Understanding** |
| **11** | i. List some common online tools used to perform sentiment analysis.(6)<br>ii. What do you understand by sentiment analysis?(7) | **BTL1** | **Remembering** |
| **12** | Show how the mining concept used in real time sentiment analysis? (13) | **BTL3** | **Applying** |

| | | | |
|---|---|---|---|
| **13** | Analyze how stock market prediction is playing a major role in data mining? (13) | **BTL4** | **Analyzing** |
| **14** | Summarize graph analytics for big data in detail. (13) | **BTL3** | **Evaluating** |
| | **PART – C** | | |
| **1** | How does the Big Data Stream Analytics Framework (BDSAF)works and explain with a neat architecture diagram (15) | **BTL6** | **Analyzing** |
| **2** | Taking stock market preconditions as a case study, elaborate on the Real-time Analytics Platform (RTAP). Develop the assumptions mode. (15) | **BTL6** | **Creating** |
| **3** | i. Evaluate the approaches to estimate the moments?(7)<br>ii. Summarize the function cost of exact counts.(8) | **BTL5** | **Evaluating** |
| **4** | Can you identify the phases involved in real time data analytics-deployment to production? Analyze. (15) | **BTL5** | **Evaluating** |

## UNIT V NOSQL DATA MANAGEMENT FOR BIG DATA AND VISUALIZATION

NoSQL Databases : Schema-less Models‖: Increasing Flexibility for Data Manipulation-Key Value Stores- Document Stores - Tabular Stores - Object Data Stores - Graph Databases Hive - Sharding –- Hbase – Analysing big data with twitter - Big data for E-Commerce Big data for blogs - Review of Basic Data Analytic Methods using R.

**PART – A**

| Q.No. | Question | BT | Competence |
|---|---|---|---|
| **1** | What is NoSQL database | **BTL1** | **Remembering** |
| **2** | Define Key Value data store? | **BTL1** | **Remembering** |
| **3** | Compare document store vs Key value store | **BTL5** | **Evaluating** |
| **4** | Provide your own definition of what big data means to your organization? | **BTL1** | **Remembering** |
| **5** | Show how sharding is done in big data? | **BTL 3** | **Applying** |
| **6** | Express three “big data” sources either within or external to your organization that would be relevant to your business | **BTL2** | **Understanding** |
| **7** | Interpret Tabular store. | **BTL2** | **Understanding** |
| **8** | Point out the features of Hive. | **BTL4** | **Analyzing** |
| **9** | Infer Hive in Big data? | **BTL4** | **Analyzing** |
| **10** | Discover any three business challenges in an organization | **BTL3** | **Applying** |
| **11** | Examine the aspects of adopting big data techniques | **BTL3** | **Applying** |
| **12** | Generalize the process of validating big data | **BTL6** | **Creating** |
| **13** | Point out the dimensions for measuring the quality of information used for big data analytics | **BTL4** | **Analyzing** |
| **14** | Define object data stores. | **BTL1** | **Remembering** |
| **15** | Interpret how twitter data is useful for analyzing big data. | **BTL2** | **Understanding** |
| **16** | Deduce top data analytic tools. | **BTL5** | **Evaluating** |
| **17** | Define R. | **BTL1** | **Remembering** |
| **18** | What is a Graph database? | **BTL1** | **Remembering** |

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|---|---|---|---|
| **19** | Define term Graph Analytics. | **BTL1** | **Remembering** |
| **20** | Describe a pilot application for graph analytics | **BTL4** | **Analyzing** |
| | **PART – B** | | |
| **1** | Examine NoSQL Databases and explain about Key Value Stores. (13) | **BTL3** | **Applying** |
| **2** | Describe how Schema-less models increasing fexibility of data manipulation in Key Value Stores? | **BTL1** | **Remembering** |
| **3** | i) What is NoSQL? What are the advantages of NoSQL?(7)<br>ii) Explain the types of NoSQL databases. (6) | **BTL1** | **Remembering** |
| **4** | Describe about Graph databases and descriptive Statistics(13) | **BTL1** | **Remembering** |
| **5** | Differentiate Tabular Stores and Object Data Stores with suitable example. (13) | **BTL2** | **Understanding** |
| **6** | Write short notes on<br>i. Characteristics of NoSQL Databases(7)<br>ii. Evaluate Hive data manipulation, queries, data definition and data types(6) | BTL5 | **Evaluating** |
| **7** | Summarize Hive Architecture in detail.(13) | **BTL2** | **Understanding** |
| **8** | Discuss the shrading architectures in detail. (13) | **BTL2** | **Understanding** |
| **9** | i) Discover the characteristics of NoSQL databases(7)<br>ii) Examine the features of Hive(6) | **BTL3** | **Applying** |
| **10** | Explain in detail about analyzing big data with twitter.(13) | **BTL4** | **Analyzing** |
| **11** | What is HBase? Give detailed note on features of HBASE(13) | **BTL1** | **Remembering** |
| **12** | i. Explain the basic data analytic methods using R.(6)<br>ii. Explain the Data input and output. (7) | **BTL4** | **Analyzing** |
| **13** | i) Examine how Big data is used for E-Commerce?(7)<br>ii) Show how Big data is for blogs? (6) | **BTL3** | **Applying** |
| **14** | Integrate Market and Business drives for Big data Analytics. (13) | **BTL6** | **Creating** |
| | **PART – C** | | |
| **1** | Analyze the use of Hive. How does Hive interact with Hadoop explain in detail.(15) | **BTL4** | **Analyzing** |
| **2** | Formulate how big data analytics helps business people to increase their revenue. Discuss with any one real time application.(15) | **BTL5** | **Evaluating** |
| **3** | Discuss the insights out of any one visualization tool.(15) | **BTL5** | **Evaluating** |
| **4** | Explain in detail about brief history of NoSQL. Explain in detail about ACID vs. BASE.(15) | **BTL 6** | **Creating** |