

Duration: 3hrs

[Max Marks:80]

- N.B. : (1) Question No 1 is Compulsory.
 (2) Attempt any three questions out of the remaining five.
 (3) All questions carry equal marks.
 (4) Assume suitable data, if required and state it clearly.

1 Attempt any FOUR [20]

- a** What are the characteristics of big Data?
- b** Explain Hadoop Architecture Model.
- c** Explain NoSQL data Architecture patterns.
- d** Explain Matrix Vector Multiplication algorithm by MapReduce
- e** How recommendation is done based on properties of the product? Explain with suitable example

2 a What is MapReduce ? Explain How Map and Reduce Work? What is Shuffling in MapReduce? **[10]**

b Why is finding similarity important in BigData? Illustrate using two example application **[10]**

3 a Explain Page Rank with Example. Can a Website's Page rank Ever Increase? What are its chances of Decreasing? **[10]**

b For given database D; Minimum support =2 use PCY algorithm to get frequent itemset **[10]**

TID	Items
1	1,2,3
2	2,3,5
3	1,2,3,5
4	2,5

4 a Explain the Data Stream Management system with neat diagram **[10]**

b Given a Dim Dataset (1,5,8,10,2) Use the agglomerative clustering algorithm with Euclidean distance to establish hierarchical grouping relationship. Draw the dendrogram. **[10]**

5 a Calculate the Cosine distance measure for given vectors [10]

$$d_1 = 3\ 2\ 0\ 5\ 0\ 0\ 0\ 2\ 0\ 0$$

$$d_2 = 1\ 0\ 0\ 0\ 0\ 0\ 0\ 1\ 0\ 2$$

b Explain the concept of Bloom's filter with the helper examples [10]

6 a Explain short note on [20]

- a) Zookeeper
- b) CAP theorem
- c) Clustering Algorithms
- d) Market basket model

