



- Notes :
1. All questions carry marks as indicated.
  2. Solve Question 1 OR Questions No. 2.
  3. Solve Question 3 OR Questions No. 4.
  4. Solve Question 5 OR Questions No. 6.
  5. Solve Question 7 OR Questions No. 8.
  6. Solve Question 9 OR Questions No. 10.
  7. Solve Question 11 OR Questions No. 12.
  8. Due credit will be given to neatness and adequate dimensions.
  9. Assume suitable data whenever necessary.
  10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Differentiate between: 6  
i) Datamart and metadata  
ii) OLTP and OLAP

- b) Explain three tier architecture of data warehouse. 7

**OR**

2. a) What is OLAP? Discuss different operations of OLAP. 7

- b) What is data model? Explain multidimensional data model in detail. 6

3. a) Write any two applications of data mining. 7

- b) Explain data mining functionalities in detail. 6

**OR**

4. a) Explain various major issues and challenges in data mining in detail. 7

- b) Write short note on: 6

i) Data cleaning

ii) Data integration

5. a) Explain k-means algorithm. Also illustrate the strength and weakness of k-means in comparison with the k-medoids algorithm. 7

- b) What is keyword-based association analysis and document classification analysis? 6

**OR**

6. a) Propose a method of implementing MLP with error back propagation learning. 7

- b) Explain agglomerative and divisive hierarchical clustering algorithms. 6

7. a) Write note on: 8  
i) Apriori Algorithm.  
ii) FP growth algorithm.
- b) What do you mean by mining frequent patterns, association and correlation? Elaborate by giving example. 6

**OR**

8. a) Explain how to improve efficiency of Apriori algorithm & FP growth algorithm in detail. 14
9. a) What do you mean by web Data mining? Explain various steps involved in WDM. 7  
b) How data mining is useful in customer relationship management in e-business world? 6

**OR**

10. a) Explain the concept of visual web data mining in detail. 6  
b) Differentiate temporal and spatial data mining in detail. 7
11. a) Describe the current challenges of Big Data problem. 8  
b) Explain Map-Reduce paradigm and Hadoop in short. 6

**OR**

12. a) Define Big Data? Describe various technologies for big data management. 7  
b) Write short note on: Big Data Technology and tools. 7

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