

(3 Hours)

80 Marks

N.B.: (1) Q.1 is compulsory.
 (2) Attempt any three out of remaining five.
 (3) Figures to the right indicate full marks.

- 1 A) Discuss issues to consider during data integration. [10]
- B) Describe in detail Data warehouse architecture and ETL process. [10]
- 2 A) What is **Market Basket Analysis**? Find out strong association rule form the given example using apriori algorithm with the support of 50% and confidence of 70% [10]

| Trans_Id | Item |
|----------|---|
| 1. | Laptop, Mouse, Headphones, Pendrive, Speakers |
| 2. | Laptop, Headphones |
| 3. | Laptop, Mouse, Pendrive |
| 4. | Mouse, Speakers |
| 5. | Laptop, Pendrive |

- B) Explain text mining and discus in brief the information retrieval methods. [10]
- 3 A) What are the characteristics and benefits of data marts? [10]
- B) Explain data pre-processing in detail. Apply Naïve Bayes algorithm and predict that if a fruit has the following properties then which type of fruit it is. [10]
 Fruit{ Yellow, Sweet, Long}

| Fruit | Yellow | Sweet | Long | Total |
|--------|--------|-------|------|-------|
| Mango | 350 | 450 | 0 | 650 |
| Banana | 400 | 300 | 350 | 400 |
| Others | 50 | 100 | 50 | 150 |
| Total | 800 | 850 | 400 | 1200 |

- 4 A) What is classification? Explain in detail Associative Classification method. [10]
- B) Write the algorithm for K-Means Clustering. Generate the clusters using K-Means Clustering (K = 2) [10]

| Object | Attribute1 (X): weight index | Attribute 2 (Y): pH |
|------------|---------------------------------|---------------------|
| Medicine A | 1 | 1 |
| Medicine B | 2 | 1 |
| Medicine C | 4 | 3 |
| Medicine D | 5 | 4 |

- 5A) Illustrate, with an example, the following OLAP operations: roll-up, drill-down, slice, dice, and pivot. [10]
- B) What is regression? How can linear regression be used for prediction. [10]

- 6 A) Write Notes on any two: [10]
 - a) Web mining.
 - b) Star and snow flake schema
 - c) KDD process.

- B) Explain the prediction methods and models for business intelligence. [10]
