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**VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN**  
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]  
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

**Question Paper Code: 50021**

**B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2024**

**Fifth Semester**

**Computer Science and Engineering**

**U19CSV31 – DATA WAREHOUSING AND DATA MINING**

**(Regulation 2019)**

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL the questions**

|                          |                    |                |                 |
|--------------------------|--------------------|----------------|-----------------|
| Knowledge Levels<br>(KL) | K1 – Remembering   | K3 – Applying  | K5 - Evaluating |
|                          | K2 – Understanding | K4 – Analyzing | K6 - Creating   |

**PART – A**

**(10 x 2 = 20 Marks)**

| Q.No. | Questions  | Marks | KL | CO  |
|-------|--|-------|----|-----|
| 1.    | What is data warehousing?  | 2     | K1 | CO3 |
| 2.    | List any five applications of data warehousing.                    | 2     | K3 | CO3 |
| 3.    | What is online analytical processing?                              | 2     | K1 | CO1 |
| 4.    | Discuss the typical OLAP operations in brief.                      | 2     | K2 | CO3 |
| 5.    | List the major activities that are carried out during data mining. | 2     | K2 | CO3 |
| 6.    | What is the relation between data warehousing and data mining?     | 2     | K1 | CO1 |
| 7.    | What do you mean by lazy learning?                                 | 2     | K1 | CO3 |
| 8.    | List and explain the performance metrics for classification.       | 2     | K2 | CO2 |
| 9.    | Discuss any three clustering techniques in brief.                  | 2     | K2 | CO3 |
| 10.   | What is K in K-means clustering?                                   | 2     | K2 | CO2 |

**PART – B**

(5 x 13 = 65 Marks)

| Q. No. | Questions   | Marks | KL | CO  |
|--------|---|-------|----|-----|
| 11. a) | Explain the issues with data extraction in detail.  | 13    | K2 | CO1 |
|        | (OR)  |       |    |     |
| b)     | List and explain about various data warehousing components.   | 13    | K2 | CO1 |
| 12. a) | How will Market Basket Analysis help in a supermarket? Illustrate with examples.  | 13    | K3 | CO2 |
|        | (OR)  |       |    |     |
| b)     | Summarize multidimensional data model. Explain the differences between relational and multidimensional data models.           | 13    | K2 | CO2 |
| 13. a) | State and explain two different applications for which data mining techniques seem appropriate.                               | 13    | K3 | CO4 |
|        | (OR)  |       |    |     |
| b)     | Discuss the key issues in integration of a data mining system with a data warehouse.  | 13    | K3 | CO4 |
| 14. a) | Explain whether association rule mining is a supervised or unsupervised type of learning. Justify with an example case study. | 13    | K3 | CO4 |
|        | (OR)  |       |    |     |
| b)     | What is SVM? Give an example classification problem that could be applied in SVM. Explain how the classification is done.     | 13    | K2 | CO4 |
| 15. a) | Explain different data types used in clustering.  | 13    | K1 | CO5 |
|        | (OR)  |       |    |     |
| b)     | Write a note on collective outlier data mining.   | 13    | K2 | CO3 |

**PART – C**

(1 x 15 = 15 Marks)

| Q. No. | Questions   | Marks | KL | CO  |
|--------|---|-------|----|-----|
| 16. a) | Discuss in detail about data mining applications in the banking industry.           | 15    | K6 | CO4 |
|        | (OR)  |       |    |     |
| b)     | Discuss in detail about data mining applications in health care monitoring systems. | 15    | K6 | CO5 |