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Question Paper Code	13395
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B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2025
Eighth Semester
Artificial Intelligence and Data Science
20AIEL802 - INTEGRATED DATA MANAGEMENT
Regulations - 2020

Duration: 3 Hours Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)
 Answer ALL Questions

	Marks	K – Level	CO
1. Which of the following is a key feature of the multidimensional data model in a data warehouse? (a) Tabular representation of data (b) Storage of transactional data (c) Data organized in dimensions and facts (d) Real-time updates of data	1	K1	CO1
2. Find a major method for efficiently computing data cubes in a data warehouse. (a) sorting (b) partitioning (c) dynamic programming (d) hashing	1	K1	CO1
3. Which of the following is not a step in the data mining process? (a) Data cleaning (b) Data collection (c) Data preprocessing (d) Pattern evaluation	1	K1	CO2
4. What does the 'interestingness of patterns' refer to in data mining? (a) The size of the dataset (b) The relevance and usefulness of the discovered patterns (c) The complexity of the data structure (d) The speed of pattern discovery	1	K1	CO2
5. Which of the following describes 'correlation analysis' in the context of association rule mining? (a) Identifying rules with strong relationships between items (b) Finding clustering patterns (c) Finding outliers in data (d) Generating prediction models	1	K1	CO3
6. Select the following is true about constraint-based association mining. (a) It focuses on generating all possible association rules (b) It finds association rules with constraints like min support, min confidence, etc. (c) It ignores constraints for faster rule generation (d) It only uses linear regression	1	K1	CO3
7. Which of the following is a classification method based on a tree structure? (a) Decision tree induction (b) K-means (c) DBSCAN (d) Apriori	1	K1	CO4
8. Which classification method is based on the probability of an event belonging to a class? (a) Rule-based classification (b) Bayesian classification (c) Back propagation (d) K-nearest neighbors	1	K1	CO4
9. Specify the following is an application of data mining. (a) Predicting stock market trends (b) Designing hardware components (c) Creating software documentation (d) Managing daily backups of databases	1	K1	CO5
10. Which of the following best describes the goal of data mining? (a) To generate random patterns from data (b) To discover previously unknown patterns from large datasets (c) To store data in a compressed format (d) To visualize data in graphical formats	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

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| 11. Define data warehouse. | 2 | K1 | CO1 |
| 12. What are DBMS schemas for decision support? | 2 | K1 | CO1 |
| 13. State data mining. | 2 | K1 | CO2 |
| 14. Discuss the importance of data preprocessing. | 2 | K2 | CO2 |
| 15. Outline associations. | 2 | K2 | CO3 |
| 16. Define correlation analysis. | 2 | K1 | CO3 |
| 17. Annotate decision tree. | 2 | K1 | CO4 |
| 18. Mention the advantages of support vector machines. | 2 | K1 | CO4 |
| 19. Enumerate the major types of data in clustering. | 2 | K2 | CO5 |
| 20. Tell the use of cluster analysis. | 2 | K1 | CO5 |
| 21. Write the advantages of data mining. | 2 | K1 | CO6 |
| 22. Specify the role played by data mining in various fields. | 2 | K1 | CO6 |

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

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| 23. a) With a neat sketch explain the architecture of data warehouse with suitable block diagram. | 11 | K2 | CO1 |
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| b) Discuss the data cube computation methods and their efficiency with an example. | 11 | K2 | CO1 |
| 24. a) List and discuss the classification of data mining systems with example. | 11 | K2 | CO2 |

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| b) Describe the steps involved in data preprocessing and its significance. | 11 | K2 | CO2 |
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| 25. a) Write and explain the algorithm for mining frequent item sets without candidate generation. Consider given database with nine transactions let min_sup = 30%. Find all frequent item sets. | 11 | K3 | CO3 |
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List of items_IDS	a,b,e	b,d	b,c	a,b,d	a,c	b,c	a,c	a,b,c,e	a,b,c

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| b) With an example apply the various rules of association rule mining based on the dimensions of data involved in the rule set. | 11 | K3 | CO3 |
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| 26. a) Interpret about classification and prediction with examples. | 11 | K2 | CO4 |
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| b) Narrate the concept of associative classification and how it is differ from other classification methods. | 11 | K2 | CO4 |
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| 27. a) Consider five points {X ₁ , X ₂ , X ₃ , X ₄ , X ₅ } with the following coordinates as a two dimensional sample for clustering. X ₁ = (0.5, 2.5); X ₂ = (0, 0); X ₃ = (1.5, 1); X ₄ = (5, 1); X ₅ = (6, 2). Illustrate the K-means partitioning algorithms using the above data set. | 11 | K3 | CO5 |
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| b) With your own example apply the concept of outlier analysis in detail. | 11 | K3 | CO5 |
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| 28. a) Identify how data mining techniques are used for customer perception towards online shopping with a suitable example. | 11 | K2 | CO6 |
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| b) Construct how data mining and business intelligence applications are play an important role in production with an example. | 11 | K2 | CO6 |
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