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Question Paper Code : R4E04

B.E./B.Tech. DEGREE EXAMINATION, APRIL / MAY 2025

Fourth Semester

Artificial Intelligence and Data Science

R21UAD404- DATA WAREHOUSING AND DATA MINING

(Regulations R2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Apply the OLAP Operations for the dimension location (Tamilnadu, Karnataka, and Kerala) CO2-App
2. List down the major tasks involved in data cleaning process CO1-U
3. Specify client/server model for our AI LAB with proper description. CO2-App
4. Suggest a way to improve picking efficiency in a warehouse with high diversity. CO2-App
5. List down the major tasks involved in data cleaning process. CO2-App
6. Calculate Euclidean distance for (1,5) & (8,2). CO2-App
7. List the two interesting measures of an association rule. CO1-U
8. Define constraint-Based Association Mining CO1-U
9. Define OLAP operation. CO1-U
10. What is meant by tuning a data warehousing? CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) Explain in detail about the Data Warehouse Components with neat diagram. CO1-U (16)
Or
(b) Explain about the data warehouse schema and its types in detail. CO1-U (16)
12. (a) Apply a business case where centralized warehousing could reduce costs and improve efficiency. CO2-App (16)
Or

- (b) Apply a scenario where a single server in a data warehouse setup becomes a bottleneck. Suggest a solution using a client/server model. CO2-App (16)
13. (a) Describe in detail about Concept hierarchies with example. CO1- U (16)
Or
(b) Explain in detail about the decision tree with example. CO1- U (16)
14. (a) Make use of Apriori algorithm to find the support and confidence from the following transaction table. CO2-App (16)

TID	ITEMSETS
T1	A, B
T2	B, D
T3	B, C
T4	A, B, D
T5	A, C
T6	B, C
T7	A, C
T8	A, B, C, E
T9	A, B, C

Given: Minimum Support= 2, Minimum Confidence= 50%

Or

- (b) Apply FP growth for discovering frequent item sets for mining association rules of the following table. Min.Sup = 2, Min Conf=50%. CO2-App (16)

Trans ID	Items Purchased
101	milk, bread, eggs
102	milk, juice
103	juice, butter
104	milk, bread, eggs
105	coffee, eggs
106	coffee
107	coffee, juice
108	milk, bread, cookies, eggs
109	cookies, butter
110	milk, bread

15. (a) Apply the OLAP Operational tools / multi-dimensional data tools for a University or Hospital or Enterprise with necessary description. CO3-Ana (16)

Or

- (b) A news website wants to analyze user behavior to recommend personalized content. Propose a web mining framework that extracts data from user logs, performs analysis, and generates recommendations. CO3-Ana (16)

