JHARKHAND Rai University
RANCHI

End Semester/Reappear (Semester V) Examination December, 2024

Programme: BCA
Course:Data Mining and Warehousing **Full Marks: 70**
Course Code: 3C.321 **Time: 3 Hrs.**
Enrolment no. _____

Q. No.	Questions	CO	Bloom Taxonomy Category	Marks
	Section I			
1	**Short Answer type questions**			**4 x 5 = 20**
a	Describe batch processing in data warehousing and how does it differ from real-time data processing?	CO1	Remember	
	or			
	Explain the purpose of a data mart in a data warehouse environment.	CO1	Understand	
b	What is the role of a source system in a data warehouse? Give an example.	CO2	Remember	
	or			
	Briefly describe the data staging area in a data warehousing environment. Why is it essential?	CO2	Understand	
c	Compare and contrast snowflake schema from a star schema.	CO3	Understand	
	or			
	Describe bitmap index and in what scenarios is it useful?	CO3	Understand	
d	Define Support Vector Machine (SVM) and mention one application in data mining.	CO4	Remember	
	or			
	Explain Sequence Mining and give an example of its application.	CO4	Understand	
	Section II			
Long Answer type questions				**3 x 10 = 30**
2	Explain the role of a data warehouse in Decision Support Systems (DSS) with examples. Describe the types of analytical processing (OLAP) that support strategic business decisions.	CO1	Evaluate	
	or			
	Explain the characteristics and functions of a Data Warehouse. How does it support business intelligence and decision-making?	CO1	Understand	
3	Explain the concept of dimensional modelling in a data warehouse. How does it support efficient querying and reporting?	CO2	Analyze	
	or			
	Describe the purpose and functions of a presentation server in the data warehouse. How does it support decision-making?	CO2	Understand	
4	Sketch the concept of slicing and dicing, with examples of how they are used in OLAP to explore data.	CO3	Understand	
	or			
	Brief an example of a data warehousing application in telecom. What types of data are analyzed, and what insights can be gained?	CO3	Understand	

<table>
<tr><th colspan="5">Section III</th></tr>
<tr><td></td><td>Application based questions</td><td></td><td></td><td rowspan="4"></td></tr>
<tr><td rowspan="3">5</td><td>Given the following transaction data for a retail store, apply the Apriori algorithm to mine the frequent item sets of market basket analysis.
• Transactions:
<table><tr><th>Transaction ID</th><th>Items</th></tr><tr><td>1</td><td>{Bread, Beer, Milk}</td></tr><tr><td>2</td><td>{Bread, Diaper, Beer, Eggs}</td></tr><tr><td>3</td><td>{Milk, Diaper, Beer, Cola}</td></tr><tr><td>4</td><td>{Bread, Milk, Diaper, Beer}</td></tr><tr><td>5</td><td>{Bread, Milk, Cola}</td></tr></table>Perform the following tasks:
(a) Write the steps for solving problem.
(b) Mine the frequent item sets using the Apriori algorithm with a minimum support threshold of 50%.
(c) Generate the association rules from the frequent item sets with a minimum confidence threshold of 80%.</td><td>CO4</td><td>Create</td><td>1 x 20 = 20</td></tr>
<tr><td colspan="3">or</td></tr>
<tr><td>Explain the Genetic Algorithm (GA) approach in data mining. Discuss GA’s components (selection, crossover, mutation) and how they contribute to solving optimization problems.</td><td>CO4</td><td>Create</td></tr>
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COURSE OUTCOME

At the end the course the candidate will able to

CO1: Understand the functionality of the various data mining and data warehousing component

CO2: Appreciate the strengths and limitations of various data mining and data warehousing models

CO3: Explain the analyzing techniques of various data

CO4: Describe different methodologies used in data mining and data ware housing