H.T.No: | | | | | | | | | | |

Course Code: **232CS2E07**

ADITYA COLLEGE OF ENGINEERING &TECHNOLOGY (A)

M.Tech – II Semester End Examinations Regular (ACETR23) – JULY 2024

ADVANCED DATA BASES & MINING

(Computer Science and Engineering)

Time: 3 hours **Max. Marks: 75**

Answer ONE question from each unit
All Questions Carry Equal Marks
All parts of the questions must be answered at one place only

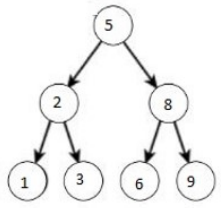
UNIT – I

1 a L2 CO1 [8M]

INPUT

N	P
1	2
3	2
6	8
9	8
2	5
8	5
5	NULL

Binary Tree Constructed from Input)



OUTPUT

1Leaf
2Inner
3Leaf
5Root
6Leaf
8Inner
9Leaf

We are given a table, which is a Binary Search Tree consisting of two columns **Node** and **Parent.** We must write a query that returns the node type ordered by the value of nodes in ascending order. There are 3 types**.**

Root — if the node is a root

Leaf — if the node is a leaf

Inner — if the node is neither root nor leaf.

b An organization needs to maintain database having attributes A, B, C, D, E, F, G, H. These attributes are functionally dependent on each other for which functionally dependency set F is given as : L3 CO1 [7M]
F : { A → B, ABCD → E, EF →GH, ACDF →EG }.
Find the Minimal cover F' of functional dependency set F

OR

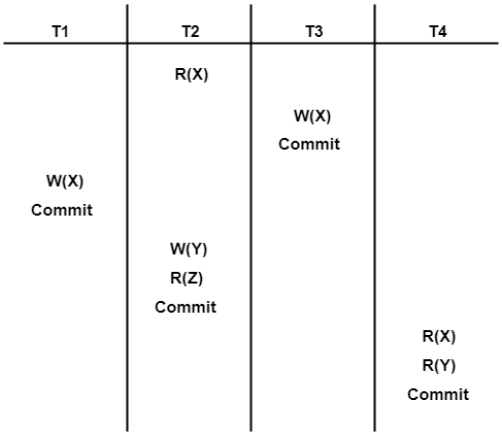
2 a Difference between 3NF and BCNF and find the BCNF decomposition of R(A,B,C,D,E) { AB->CD, D->E, A->C, B->D} L3 CO1 [8M]

b Explain about DDL, DML, DCL Commands and write equivalent SQL for relational algebra division operator? L1 CO1 [7M]

UNIT – II

3 a Explain ACID properties and how the serializability is guaranteed? L1 CO2 [10M]

b Check whether the given schedule S is conflict serializable and recoverable or not L2 CO2 [5M]



OR

4 a What is a deadlock and how it is detected in schedulers and how to prevent it L1 CO2 [8M]

b Explain the various types schedulers L1 CO2 [7M]

UNIT – III

5 a Differentiate OLAP and OLTP L1 CO3 [8M]

b Explain snow flake architecture in data ware housing L1 CO3 [7M]

OR

6 a Explain the data mining life cycle L1 CO3 [8M]

b What are the value ranges of the following normalization methods? L3 CO3 [7M]
Use these methods to normalize the following group of data: 200,300,400,600,1000
(a) min-max normalization by setting min 0 and max 1
(b) z-score normalization
(c)z-score normalization using the mean absolute deviation instead of standard deviation
(d) normalization by decimal scaling

UNIT – IV

7 a Generate association rules using Apriori algorithm form below dataset with **support threshold=50%, confidence= 60%**. L3 CO4 [10M]

Transaction	List of items
T1	I1, I2, I3
T2	I2, I3, I4
T3	I4, I5
T4	I1, I2, I4
T5	I1, I2, I3, I5
T6	I1, I2, I3, I4

b What are Frequent and Closed item sets in association mining? L1 CO4 [5M]

OR

8 a **Solve frequent pattern growth algorithm with Support threshold=50%, Confidence= 60%** L3 CO4 [10M]

TID	Items
T1	I1, I2, I3
T2	I2, I3, I4
T3	I4, I5
T4	I1, I2, I4
T5	I1, I2, I3, I5
T6	I1, I2, I3, I4

b How do you measure quality of association rules L1 CO4 [5M]

UNIT – V

9 a L3 CO5 [8M]

Objects	X	Y	Z
OB-1	1	4	1
OB-2	1	2	2
OB-3	1	4	2
OB-4	2	1	2
OB-5	1	1	1
OB-6	2	4	2
OB-7	1	1	2
OB-8	2	1	1

The sample dataset contains 8 objects with their X, Y and Z coordinates. Cluster these objects

b Differentiate the K-means and K-Medoids algorithm and its limitations? L2 CO5 [7M]

OR

10 a a) Construct the decision tree using the ID3 for the following dataset. L3 CO5 [8M]

X	Y	Z	C
1	1	1	I
1	1	0	I
0	0	1	II
1	0	0	II

b Discuss the procedure to fine to K in K-Medoids algorithm? L1 CO5 [7M]

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