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

Course Code: **232CS2E07**

ADITYA COLLEGE OF ENGINEERING &TECHNOLOGY (A)

M.Tech II Semester (ACETR23)

(ADVANCED DATABASES AND MINING)

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	Consider a relation R with five attributes ABCDE. Given the following dependencies**:** A→B, BC→E, and ED→A. Identify all keys for R. Is R in 3NF? Is R in BCNF?	L3	CO1	[8]
	b	What is schema refinement? Discuss the problems (Anomalies) caused by redundancy.	L2	CO1	[7]
		OR			
2	a	Consider the universal relation R = (A, B, C, D, E, F, G, H, I, J) and the set of functional dependencies F= ({A, B}→{C}, {A}→{D, E}, {B}→{F}, {F}→{G, H}, {D}→{I, J}). Identify the key for R? Develop the relations by decomposing the relation R into 2NF, then 3NF.	L3	CO1	[8]
	b	What is redundancy? What are the problems encountered by redundancy? Explain.	L2	CO1	[7]
UNIT – II					
3	a	Consider the following SQL query on the schema branch (branch_name, branch_city, assets): select t.branch_name from branch t, branch s where t.assets > s.assets and s.branch_city = 'Burnaby'; Construct an efficient relational algebra expression that is equivalent to this query and JUSTIFY your choice with an explanation.	L3	CO2	[8]
	b	Explain various types of lock-based concurrency control with a neat sketch and examples.	L2	CO2	[7]
		OR			
4	a	Explain in detail about shadow paging recovery technique. Under what circumstances does it not require a log?	L2	CO2	[7]
	b	Illustrate in detail about different Database access Control mechanisms to provide Database Security	L3	CO2	[8]
UNIT – III					
5	a	Explain briefly the primitives for specifying a data mining task	L2	CO3	[7]
	b	What is Numerosity Reduction? What are the available techniques for numerosity reduction? Describe any two techniques for numerosity reduction.	L2	CO3	[8]
		OR			
6	A	Explain the needs and list out the steps involved in Data Pre-	L3	CO3	[7]

processing?

	b	Describe the OLAP operations in the Multidimensional data model	L2	CO3	[8]

UNIT – IV

7	a	A database has five transactions. Let min-sup=60% and min-Conf=80%. **TID** / **ITEMS BROUGHT** T100 {M,O,N,K,E,Y} T200 {D,O,N,K,E,Y} T300 {M,A,K,E} T400 {M,U,C,K,Y} T500 {C,O,O,K,I,E} Find all frequent itemsets using Apriori and FP-growth, respectively. Compare the efficiency of two mining processes	L3	CO4	[8]
	b	What is support counting? Why one need support counting? With an example, briefly describe compact representation of frequent item sets	L2	CO4	[7]

OR

8	a	"Strong rules are not necessarily interesting". Justify your answer with an example.	L4	CO4	[8]
	b	Briefly explain about Data Summarization with an example?	L2	CO4	[7]

UNIT – V

9	a	What is attribute selection measure? Briefly describe the attribute selection measures for decision tree induction.	L2	CO5	[7]
	b	Explain in brief about COWEB Clustering Method?	L2	CO5	[8]

OR

10	a	Explain about Text Mining. Discuss how it is different from Web Mining?	L3	CO5	[8]
	b	What are the different categories of Clustering Methods?	L2	CO5	[7]

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