

09/05/2025 MCA SEM-I (NEP-2020) ADMS QP CODE: 10082226

Time: 2 Hours

Total Marks: 50

Note:			Marks	Course Outcome	Bloom's Level												
				CO	BL												
Q1	Attempt following questions.																
	a.	How would you compare OLAP and OLAP.	[05]	CO2	BL1												
	b.	How would you describe Data reduction techniques?	[05]	CO4	BL1												
	c.	How would you compare OODBMS and ORDBMS	[05]	CO1	BL2												
	d.	Explain Page Rank algorithm	[05]	CO5	BL1												
Q2	a.	Describe Hierarchical Clustering and explain the different types of it in your own words?	[08]	CO4	BL2												
	b.	Describe the Knowledge Discovery in Databases (KDD) process and explain the purpose of each of its steps in your own words?	[07]	CO4	BL3												
Q3	a.	Apply Apriori algorithm to the following data set to find out strong association rule with Support= 50% and Confidence=70%. <table><tr><td>Trn. No</td><td>Item purchased</td></tr><tr><td>1</td><td>Mask, Sanitizer ,Hand wash, Soap</td></tr><tr><td>2</td><td>Mask , Sanitizer , Hand wash</td></tr><tr><td>3</td><td>Mask ,N95, crayons</td></tr><tr><td>4</td><td>Mask , Hand wash , N95</td></tr><tr><td>5</td><td>Sanitizer , Hand wash , N95</td></tr></table>	Trn. No	Item purchased	1	Mask, Sanitizer ,Hand wash, Soap	2	Mask , Sanitizer , Hand wash	3	Mask ,N95, crayons	4	Mask , Hand wash , N95	5	Sanitizer , Hand wash , N95	[08]	CO3	BL3,BL4
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	b.	How do the Star Schema, Snowflake Schema, and Fact Constellation Schema differ in terms of structure, data organization, and query performance.	[07]	CO2	BL2												

Q4	a.	Can you describe what a Data Warehouse is and explain the main components of its architecture in your own words?	[08]	CO2	BL2															
	b.	<p>Generates the cluster using Euclidian distance for the given dataset using K-means clustering. (k=2). Consider P1 and P2 as a seeds/centroid for two clusters respectively.</p> <p>The Euclidean distance function between two points $a=(x1, y1)$ and $b=(x2, y2)$ is defined as: $d(a, b) = (x2 - x1)^2 + (y2 - y1)^2$</p> <table><tr><td>id</td><td>Wt</td><td>Ht</td></tr><tr><td>p1</td><td>1</td><td>2</td></tr><tr><td>p2</td><td>2</td><td>3</td></tr><tr><td>p3</td><td>2</td><td>3</td></tr><tr><td>p4</td><td>2</td><td>4</td></tr></table>	id	Wt	Ht	p1	1	2	p2	2	3	p3	2	3	p4	2	4	[07]	CO4	BL3,BL4
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p2	2	3																		
p3	2	3																		
p4	2	4																		
Q5	a.	Explain different Architecture for Parallel Database	[08]	CO1	BL2															
	b.	What is Decision tree? Describe how the ID3 algorithm uses information gain to construct a decision tree.	[07]	CO4	BL2															
