

K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

Subject Code: ITDLC5051 Subject Name: Advanced Database management system & IR Date: 12-12-2022

Nov – Dec 2022
 (B.Tech.) Program: Information Technology
 Examination: **TY** Semester: **IV**
 Course Code: ITDLC5051 and Course Name: Advanced Database Management System & IR
 Duration: 2.5 Hours Max. Marks: 60

Instructions:
 (1) All questions are compulsory.
 (2) Draw neat diagrams wherever applicable.
 (3) Assume suitable data, if necessary.

	Question	Max. Marks	CO	BT Level
QU-1	Solve any SIX questions out of eight:	12		
i)	What are different types of loading in ETL process?	2	CO4	1
ii)	Explain Structured Text Retrieval Models.	2	CO3	2
iii)	What are data marts?	2	CO5	1
iv)	List the different types of transparencies provided by the Distributed DBMS.	2	CO2	1
v)	List the steps of Query Processing.	2	CO1	1
vi)	List the formal characteristics of IR Models and describe any one characteristic.	2	CO3	1
vii)	Explain Extended Boolean model in detail.	2	CO6	2
viii)	What are different types of metadata in a data warehouse?	2	CO4 - CO5	1
QU-2	Solve any FOUR questions out of six.	16		
i)	Explain slice and dice operations with an example.	4	CO4 - CO5	3
ii)	Explain Extended Boolean model in detail.	4	CO3	2
iii)	Explain Discretionary Access control, mandatory access control, and Role-based access control in brief.	4	CO2	2
iv)	Consider the query: SELECT dept_id, count(empid) FROM employee Group by dept_id;	4	CO1	3

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	Explain the operation done by this query and represent the above SQL query in at least two equivalent relational-algebra expressions.			
v)	Explain in detail the Generic Multimedia Indexing Approach.	4	CO6	2
vi)	Explain different the types of a) data extraction and b) data transformation.	4	CO4	2
QU-3	Solve any TWO questions out of three.	16		
i)	One of the online retail company's features is an e-wallet service, that holds credit that can be used to pay for products purchased on the platform. Users can receive credit in three different ways: When a product purchase that is paid for is canceled, the money is refunded as cancellation credit. Users can receive gift card credit as a gift. If a user has a poor service experience, soo-sorry credit may be provided. Credit in the e-wallet expires after 6 months if it is gift card credit and soo-sorry credit, but in 1 year if it is cancellation credit. a) Design a data warehouse (Snowflake Shema) by clearly listing the various b) facts and c) dimensions to analyze customer behavior.	8	CO4 - CO5	5
ii)	What is key restructuring? Explain why it is needed. Design a simple illustrative example for key restructuring.	8	CO4	2
iii)	Explain mixed fragmentation with relational algebra query and examples.	8	CO2	2
QU-4	Solve any TWO questions out of three.	16		
i)	What is query optimization? Why is a query expressed in relational algebra preferred over a query expressed in SQL? What are the factors that contribute to the cost of a query?	8	CO1	2
ii)	Apply the concept of Database and Information Retrieval to differentiate it considering real life application.	8	CO4 - CO5	4
iii)	What are SPATIAL Databases? List the characteristics of SPATIAL databases. Discuss the different types of models in spatial databases.	8	CO2	2
