

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

April – May 2024

(B.Tech) Program: B.Tech. (Electronics and Telecommunication) Scheme I/II: _II_

Examination: TY Semester: VI

Course Code: EXDLC6054 and Course Name: Database Management System

Date of Exam: 25/05/24

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.

		Max. Marks	CO	BT level
Q 1	Solve any six questions out of eight:	12		
i)	List advantages and applications of DBMS	02	CO1	U
ii)	List types of relationships in ER diagram with example	02	CO2	U
iii)	List and explain different Operators in SQL	02	CO3	U
iv)	List and explain Aggregate functions in SQL	02	CO4	U
v)	Explain candidate key with example	02	CO2	U
vi)	List the terminologies used in normal forms.	02	CO4	U
vii)	Give comparison for Relational Algebra and Relational Calculus.	2	CO6	R
viii)	Compare Table and View?	02	CO5	R
Q.2	Solve any four questions out of six.	16		
i)	Draw the Database Architecture and explain in brief	04	CO1	R
ii)	Write short note on primary key and foreign key with example.	04	CO2	R
iii)	In relation R(ABCDEF), functional dependencies are given, FD { $AB \rightarrow C$, $C \rightarrow D$, $C \rightarrow E$, $E \rightarrow F$, $F \rightarrow A$ }, What is the candidate key? Write prime and non-prime attribute.	04	CO3	A
iv)	Write short note on: Security and Authorization in DBMS.	04	CO4	R

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v)	Explain constraints in SQL.	04	CO5	A
vi)	Explain ACID properties in detail	04	CO6	R
Q.3	Solve any two questions out of three.	16		
i)	Why would you choose a database system instead of simply storing data in operating system files? When would it make sense not to use a database system?	08	CO1	A
ii)	Explain 1NF, 2NF, 3NF and BCNF with suitable example?	08	CO4	U
iii)	Explain following types of attributes with an example 1. Single Valued 2. Multi Valued 3. Composite 4. Derived	08	CO2	U
Q.4	Solve any two questions out of three.	16		
i)	Draw UML case diagram for exam conduction.	08	CO3	A
ii)	Construct an ER diagram for school with the set of students and a set of teachers associated with each student with a log of various examinations conducted write a relational schema for the ER design.	08	CO6	A
iii)	Explain how aggregate function work on null values	08	CO5	U
