Late. Shapi Damanlia Trust's Jubilee Project
THAKUR COLLEGE OF
ENGINEERING & TECHNOLOGY
Autonomous College Affiliated to University of Mumbai
Approved by All India Council for Technical Education(AICTE) and Government of Maharashtra(GoM)
Conferred Autonomous Status by University Grants Commission (UGC) for 10 years w.e.f. AY 2019-20
Among Top 150 Colleges in the Country where NIRF India Ranking 2020 in Engineering College category
Estd. 2003

IN-SEMESTER EXAMINATION-II
S.E. (Semester-III)
SUBJECT – Database Management System

Branch: COMP
Div.: ALL
Duration: 60 Minutes

Date: 18/10/2024
Timing: 02:00 PM to 03:00 PM
Maximum Marks: 20

Instructions –

1. All questions are compulsory.
2. Assume suitable data wherever necessary and state the assumptions made.
3. Diagrams / sketches should be given wherever necessary.
4. Use of logarithmic table, drawing instruments and non-programmable calculators is permitted.
5. Figures to the right indicate full marks.

Q.1		Answer any 5 of the following questions	Marks	Course Outcomes	Learning Levels
	a.	What role do joins play in combining data from multiple tables, and why are they essential for relational database queries?	2	4	R
	b.	What is referential integrity, and how does it ensure consistency between related tables in a relational database?	2	4	R
	c.	Contrast Boyce-Codd Normal Form (BCNF) with Third Normal Form (3NF). In your discussion, emphasize their differing approaches to handling functional dependencies and their implications for database design.	2	5	U
	d.	Discuss the mechanisms through which 1NF effectively prevents data redundancy and promotes data integrity in relational databases.	2	5	U
	e.	Explain rollback and commit using suitable example consider a database of college.	2	6	A
	f.	What defines a transaction in a database system, and why are ACID properties essential for maintaining consistency and reliability?	2	6	U
	g.	Discuss the importance of Atomicity in the database design with suitable examples.	2	6	R
Q.2	a.	Evaluate the importance of SQL sub-queries. How would you use a sub-query to find all flights operated by a specific airline with delays over 30 minutes.	5	4	A
		OR			
	b.	Describe the process and challenges of revoking user authorization in complex database systems that span across multiple applications or distributed architectures. Provide examples of potential issues that arise with orphaned permissions or inconsistent access control enforcement.	5	4	U
Q.3	a.	Analyze the implications of adopting 3NF over 2NF in terms of data integrity, including the impact on database performance and real-world applications.	5	5	A
		OR			
	b.	Discuss the functional dependencies that can cause violations of 2NF and 3NF, and outline strategies to mitigate these violations in database design.	5	5	A