

INDIRA UNIVERSITY, PUNE

SCHOOL OF INFORMATION TECHNOLOGY- BSC CS

Term End Examination (2025 Pattern) April- May – 2026- Semester – II

Course Name: Relational Database Management System
Course Code: 25BSC202T

Max. Marks: 25
Time: 1 Hr. 30 Minutes

Instructions

- All Questions are compulsory.
- Neat diagrams must be drawn wherever necessary.

Q1.	Attempt any 5 out of 7. (1 Mark each)	(5 Marks)	CO1																											
	1. What is multimedia database? 2. What is explicit cursor? 3. What is IN parameter? 4. Define GRANT command. 5. Define REVOKE command. 6. What is phantom read? 7. Define PL/pgSQL.																													
Q2.	Attempt any 2 out of 4. (5 marks each)	(10 Marks)	CO2																											
	1. Explain object-based databases with advantages and disadvantages. 2. Explain Undo and Redo operations with example. 3. Explain deadlock with example. 4. Explain triggers with syntax and example																													
Q.3	Attempt all questions. a) The following is the list of events in an interleaved execution of sets T1, T2 ,T3 ,T4 assuming 2PL (Two-Phase Locking). Is there a deadlock? If yes, which transactions are involved in deadlock? <table><tr><td>Time</td><td>Transaction</td><td>Code</td></tr><tr><td>t1</td><td>T1</td><td>Lock (A, X)</td></tr><tr><td>t2</td><td>T2</td><td>Lock (B, S)</td></tr><tr><td>t3</td><td>T3</td><td>Lock (C, S)</td></tr><tr><td>t4</td><td>T4</td><td>Lock (A, S)</td></tr><tr><td>t5</td><td>T1</td><td>Lock (C, S)</td></tr><tr><td>t6</td><td>T2</td><td>Lock (B, X)</td></tr><tr><td>t7</td><td>T3</td><td>Lock (D, X)</td></tr><tr><td>t8</td><td>T4</td><td>Lock (D, S)</td></tr></table>	Time	Transaction	Code	t1	T1	Lock (A, X)	t2	T2	Lock (B, S)	t3	T3	Lock (C, S)	t4	T4	Lock (A, S)	t5	T1	Lock (C, S)	t6	T2	Lock (B, X)	t7	T3	Lock (D, X)	t8	T4	Lock (D, S)	(5 marks)	CO3
Time	Transaction	Code																												
t1	T1	Lock (A, X)																												
t2	T2	Lock (B, S)																												
t3	T3	Lock (C, S)																												
t4	T4	Lock (A, S)																												
t5	T1	Lock (C, S)																												
t6	T2	Lock (B, X)																												
t7	T3	Lock (D, X)																												
t8	T4	Lock (D, S)																												

	b) Consider the following transactions. Find out two non-serial schedules that are serializable: (5 marks) <table><thead><tr><th>T1</th><th>T2</th></tr></thead><tbody><tr><td>Read (P)</td><td>Read (P)</td></tr><tr><td>P = P + 100</td><td>P = P – 100</td></tr><tr><td>Write (P)</td><td>Write (P)</td></tr><tr><td>Read (Q)</td><td>Read (Q)</td></tr><tr><td>Read (R)</td><td>Q = Q – 200</td></tr><tr><td>Q = Q + 200</td><td>Write (Q)</td></tr><tr><td>Write (Q)</td><td></td></tr><tr><td>R = R + 300</td><td></td></tr><tr><td>Write (R)</td><td></td></tr></tbody></table>	T1	T2	Read (P)	Read (P)	P = P + 100	P = P – 100	Write (P)	Write (P)	Read (Q)	Read (Q)	Read (R)	Q = Q – 200	Q = Q + 200	Write (Q)	Write (Q)		R = R + 300		Write (R)		
T1	T2																					
Read (P)	Read (P)																					
P = P + 100	P = P – 100																					
Write (P)	Write (P)																					
Read (Q)	Read (Q)																					
Read (R)	Q = Q – 200																					
Q = Q + 200	Write (Q)																					
Write (Q)																						
R = R + 300																						
Write (R)																						
Q.3	OR (10 marks) Attempt all questions. School – Teacher Database School (school_id, school_name, city) Teacher (t_id, t_name, join_date, salary, school_id) Relationship: • One School → Many Teachers Write a cursor to accept a month as input and display the names of teachers who joined in that month.	CO3																				
