

INDIRA UNIVERSITY, PUNE

SCHOOL OF INFORMATION TECHNOLOGY- BSC CYS

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

Course Name: Relational Database Management System
Course Code: 25CYS203T

Max. Marks: 25
Time: 1:30 Hrs.

Instructions

- All questions are compulsory.

Q1.	Attempt any 5 out of 7. - (1 Mark each)	(5 Marks)	CO1																
	1. What is the purpose of %rowtype. 2. List of different lock modes. 3. Define database security 4. Define database backup. 5. Define distributed database 6. Which are characteristics of big data. 7. List components of a PL/SQL block.																		
Q2.	Attempt any 2 out of 4. - (5 marks each)	(10 Marks)	CO2																
	1. Explain the use of control structures (conditional statements and loops) in PL/SQL. 2. Illustrate the different states of a transaction with diagram. 3. Explain referential integrity and its importance in databases. 4. Summarize the ARIES recovery algorithm.																		
Q3	Attempt all questions- (5 marks each)	(10 Marks)	CO3																
	a) Make use of the following transactions. Give two non-serial schedules that are serializable to serial schedule <table><tr><td>T₁</td><td>T₂</td></tr><tr><td>Read (c)</td><td>Read (c)</td></tr><tr><td>Read (a)</td><td>Read (a)</td></tr><tr><td>a = a - c</td><td>a = a + c</td></tr><tr><td>write (a)</td><td>write (a)</td></tr><tr><td>Read (b)</td><td></td></tr><tr><td>b = b - c</td><td></td></tr><tr><td>write (b)</td><td></td></tr></table>	T ₁	T ₂	Read (c)	Read (c)	Read (a)	Read (a)	a = a - c	a = a + c	write (a)	write (a)	Read (b)		b = b - c		write (b)			
T ₁	T ₂																		
Read (c)	Read (c)																		
Read (a)	Read (a)																		
a = a - c	a = a + c																		
write (a)	write (a)																		
Read (b)																			
b = b - c																			
write (b)																			

	b) Following are the log entries at the time of system crash : [start - transaction, T1] [write - item, T1 , A, 10, 100] [commit, T1] [check point] [start - transaction, T2] [write - item, T2 , B, 20, 200] [commit, T2] [start - transaction, T3] [write - item, T3 , c, 30, 300] system crash If immediate update technique with a checkpoint is used, what will be the recovery procedure? i) Identify the role of checkpoint in recovery. ii) Choose which transactions need UNDO and REDO.	
Q.3	OR Attempt all questions (5 marks each) (10 Marks) a) Identify differences between MAC, DAC and RBAC b) Consider following database. Student (Sno, Sname, Sclass, Saddr) Teacher (tno, tname, qualification, experience) The relationship is as follows: Student Teacher M - M with descriptive attribute subject. Construct stored function to count the number of teachers teaching to student named "Ravi " (Accept student name as input parameter) Raise an Exception if student name doesn't exist.	CO3
