

INDIRA UNIVERSITY, PUNE

SCHOOL OF INFORMATION TECHNOLOGY- MSC CA

Backlog Examination (2025 Pattern) April/ May– 2026 - Semester – I

Subject Name: Database Systems and SQL
Subject Code: 25PCA101T

Max. Marks: 50
Time: 2:30 Hrs.

Instructions

- All Questions are Compulsory.
- Draw neat diagram wherever necessary.

CO #	Cognitive Ability	Course Outcome
CO1	Remember	Recall fundamental concepts and principles related to data storage, organization, and management.
CO2	Understand	Explain how data models and design techniques represent and structure information.
CO3	Apply	Use appropriate tools and techniques to store, query, and update data.
CO4	Analyze	Analyze data structures and processes to identify relationships, patterns, and improvements.

Q.1.	Attempt any 5 out of 7. (2 marks each)	(10 Marks)	CO1
	a) What is meant by a Data Model. b) What do you understand by a Foreign Key? c) Define Third Normal Form (3NF). d) List two SQL DML commands. e) What is meant by a Subquery. f) Recall Cursor in PL/SQL. g) Define Data Independence.		
Q.2.	Attempt any 4 out of 6. (5 marks each)	(20 Marks)	CO2
	a) Illustrate the Architecture of a DBMS with a neat diagram. b) Demonstrate the use of CHECK constraint and write the syntax of check constraint in a column definition.		

	c) Now a day there are many multiplex theaters opened in Pune city, these multiplex theaters can show 3 to 6 movies at a time. Theaters self-decide which movie has to be shown to peoples for longer times. Movie is of two types: Universal and adults. Adult's movie cannot allow to age below 18 persons. Many theaters have AC and doubly digital sound quality system. The ticket of movie is along with taxes or tax-free. Outline and draw an E-R diagram for above scenario, assume, attributes if necessary. d) Explain Functional Dependency and its types. e) Interpret the various SQL operators with examples. f) Explain Data Model with its types.	
Q.3.	Attempt any 2 out of 3. (5 marks each) (10 Marks) a) Consider the following relation: R(A, B, C, D, E) and the set of FDs defined on R as: F = {A- >B, CD->E, A->C, B->D, E->A}. Construct the closure of F i.e., F+. b) Make use of aggregate functions with example. c) Develop a PL/SQL program to check whether a specified employee exists in the EMP table. Accept empno from the user and use exception handling to display a message if the employee does not exist.	CO3
Q.4.	Attempt the following question. (10 Marks) Consider the following relations: Wholesalers(wno, wname, address, city) Product(pno, pname) Each Wholesaler can deal with multiple Products, and each Product can be supplied by multiple Wholesalers — a many-to-many relationship. Discover an appropriate relational database in 3NF and write SQL statements for the following: i) List the names of wholesalers who supply the product 'Mouse'. ii) Count the number of wholesalers from 'Pune' city. iii) Delete the records of wholesalers who supply the product 'Scanner' using a subquery. iv) Write a PL/SQL block that displays the total number of products supplied by each wholesaler using a cursor.	CO4
