

INDIRA UNIVERSITY, PUNE

SCHOOL OF INFORMATION TECHNOLOGY- BSC CS

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

Subject Name: Database Management System
Subject Code: 25BSC102T

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

Instructions

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

CO #	Cognitive Ability	Course Outcome
CO2	Understand	Explain principles of data modeling, constraints, and relational structures to represent real-world scenarios effectively.
CO3	Apply	Use database languages and tools to define, manipulate, and retrieve data in varied application contexts.
CO6	Create	Design and implement database solutions that align with organizational requirements and industry best practices.

Q1.	Attempt any 5 out of 7. (1 mark each) a) List three levels of data abstraction in a DBMS. b) List the different Normalization forms. c) Identify any two users of a DBMS. d) Define “check” constraint. e) What is an indexed file organization? f) Define insertion anomaly. g) What is an Entity in ER model?	(5 Marks)	CO2
Q2.	Attempt any 2 out of 4. (5 marks each) a) Explain the purpose of Data Manipulation Language (DML) in SQL and write different DML commands with syntax and examples b) What are the Date Functions in SQL. Explain any three Date Functions by writing suitable examples. c) Explain DBMS architecture with a neat diagram. d) What is an Attribute? Explain different types of attributes with example.	(10 Marks)	CO3
Q.3.	Attempt all questions. (5 marks each) a) Consider the relation R(P, Q, R, S, T, U) with the set of functional dependencies: $F = \{ P \rightarrow Q, Q \rightarrow R, PR \rightarrow S, S \rightarrow T, T \rightarrow U \}$	(10 Marks)	CO6

	1) Apply Armstrong's axioms to compute the closure of the functional dependency set (F^+). 2) Determine the closure of attribute {P} using the given functional dependencies. b) A Student can enroll in multiple Courses, and each Course can have multiple students. Each enrollment is recorded as an Enrollment, which tracks the details of the student's participation in the course. A Teacher can teach multiple courses, and each course can be taught by multiple teachers. 1) Identify the entities, attributes and relationships. 2) Construct a detailed E-R diagram showing all entities and relationships.(Assume suitable attributes) OR	
Q.3	Attempt all questions. (10 Marks) Consider the following tables Supplier and Product with one-to-many relationship (one supplier can supply many products). 1) Write a SQL syntax to create the following tables with appropriate data types: (4 Marks) Supplier(SupplierID, SupplierName, City) and Product(ProductID, ProductName, SupplierID, Price). 2) Write SQL queries to: (6 Marks) • Find products with Price greater than 1000. • Find all suppliers located in the city 'Mumbai'. • Display products whose stock quantity is between 50 and 200.	CO6
