SET-3

INDIRA UNIVERSITY, PUNE

SCHOOL OF INFORMATION TECHNOLOGY-SOIT BSC (CYS)

Term End Examination (2025 Pattern) December – 2025 - Semester – I

Subject Name: - Database Management Systems **Max. Marks: 25**
Subject Code: 25CYS103T **Time: 1:30 Hrs.**

Instructions

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

CO #	Cognitive Ability	Course Outcome
CO1	**Remember**	Recall fundamental concepts, architectures, and components of database systems and their roles in managing data.
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.

Q1.	**Attempt any 5 out of 7. (1 mark each)** **(5 Marks)** a) Define Sophisticated User of DBMS. b) What is significance of Primary Key? c) List types of Attributes. d) List out SET operations in SQL. e) What is use of "like" clause in SQL? f) Define Multivalued Functional Dependency. g) Define 3NF.	CO1
Q2.	**Attempt any 2 out of 4. (5 marks each)** **(10 Marks)** a) Explain the three levels of data abstraction in a DBMS. b) Illustrate the symbols used in ER diagrams for entities and relationships c) Explain the following clauses along with appropriate example. i. GROUP BY ii. ORDER BY d) Explain inference rules for functional dependencies.	CO2
Q.3.	**Attempt all questions. (5 marks each)** **(10 Marks)** **a) Design an ER diagram for an exam portal. A student can appear for multiple exams. Each exam contains multiple questions, and each question can appear in multiple exams.** i) Construct an E-R diagram. ii) Build relational database from above ER diagram.	CO3

	b) **Consider the following relation.** Employee (empno, empname, salary, comm.., desg) Department (deptno, deptname, location) Employee and Department are related with many to one relationship. **Develop a relational database in 3NF and solve the following queries in SQL.** i) Find out employees who are working at Pune location. ii) Find the maximum, minimum and average salary for every designation. iii) Update commission for every employee by 5%. **OR**	
Q.3	**Attempt all questions.** **(10 marks)** a) Consider a relation R (A, B, C, D, E) with the following dependencies: F={AB→C, CD→E, DE→ B} Identify whether AB is a candidate key of this relation? If not, is ABC? Explain your answer. (5 marks) b) Explain SQL having clause along with proper example. (3 marks) c) What is constraint? Explain not null constraint with example (2 marks)	CO3

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