THAKUR COLLEGE OF ENGINEERING & TECHNOLOGY
Estd. in 2001

# IN-SEMESTER EXAMINATION-I

## S.E. (Semester-III)

## SUBJECT – Database Management System

**Branch: COMP**
**Div.: ALL**
**Duration: 60 Minutes**

**Date: 28/08/2024**
**Timing: 2:00 PM to 3:00 PM**
**Maximum Marks: 20**

**Instructions –**

1. All questions are compulsory.
2. Assume suitable data wherever necessary and state the assumptions made.
3. Diagrams / sketches should be given wherever necessary.
4. Use of logarithmic table, drawing instruments and non-programmable calculators is permitted.
5. Figures to the right indicate full marks.

| Q.1 | | Answer any 5 of the following questions | Marks | Course Outcomes | Learning Levels |
|---|---|---|---|---|---|
| | a. | Explain the role of a Database Management System (DBMS). What are the primary functions and benefits of using a DBMS? | 2 | 1 | U |
| | b. | Define the Three-Level Architecture of a database system. What are the main levels and their functions? | 2 | 1 | R |
| | c. | Differentiate between data and information within the context of databases. How do these concepts relate to data management and analysis? | 2 | 1 | U |
| | d. | Compare and contrast Single-Valued and Multi-Valued Attributes with examples. How do these attribute types affect data representation? | 2 | 2 | U |
| | e. | Describe the purpose of a Composite Attribute and provide an example. How do composite attributes enhance the representation of data in the ER Model? | 2 | 2 | U |
| | f. | List the Data Control Language (DCL) commands. What are the roles of these commands in managing database permissions and access? | 2 | 3 | R |
| | g. | Differentiate between the DELETE and DROP commands in SQL. How do these commands affect database tables and records? | 2 | 3 | U |
| Q.2 | a. | Draw an ER diagram for an Airport Management System that includes entities such as Flights, Passengers, Airlines, Gates, and Tickets. Illustrate the relationships, such as passengers booking flights, flights being operated by airlines, and flights departing from specific gates. | 5 | 2 | A |
| | | OR | | | |
| | b. | Explain the concept of Specialization in the EER Model and provide an example of its application. How does specialization refine entity definitions? | 5 | 2 | A |
| Q.3 | a. | Explain the importance of transaction management in a database system. Discuss the roles of COMMIT, ROLLBACK, and SAVEPOINT commands in ensuring data consistency and integrity. | 5 | 3 | U |
| | | OR | | | |
| | b. | Describe constraints in a database and elaborate on their significance in maintaining data quality. Differentiate between UNIQUE, PRIMARY KEY, FOREIGN KEY, and CHECK constraints, providing examples for each. | 5 | 3 | U |