

GYANMANJARI INNOVATIVE UNIVERSITY

Gyanmanjari Institute of Technology

B.Tech- End Semester Examination (ESE)-Summer - 2026

Enrollment No.: 55

Date: 15/05/2026

Subject Code: BETCE14306

Semester: 4

Subject Name: Database Management System

Total Marks: 100

Time: 10:30AM To 01:30PM

Instructions:

1. Question No. 1 is Compulsory.
2. Make Suitable Assumptions wherever necessary.
3. Figures to the right indicate full marks.

	Marks
Q.1 (a) Explain role of DBA and its responsibility.	05
(b) Explain components of data dictionary.	05
(c) List the three levels of ANSI-SPARC architecture.	10
Q.2 (a) What is a Domain in DBMS?	05
(b) What are the advantages of Normal form.	05
OR	
(b) Explain different types of attributes in ER model.	05
(c) What are the different types of joins in SQL? Briefly explain each.	10
OR	
(c) What is Database Normalization?	10
Q.3 (a) What does a Transaction mean in DBMS?	05
(b) Explain Serializable	05
(c) Explain all DDL & DML Commands with Example.	10
OR	
(a) Explain ACID Property.	05
(b) Explain Database Recovery.	05
(c) How do you use the GROUP BY clause in SQL? Provide an example.	10
Q.4 (a) Explain Transaction Lifecycle.	05
(b) Give difference between DAC and MAC.	05

(c) TABLE Worker (WORKER\_ID INT NOT NULL PRIMARY KEY, FIRST\_NAME VARCHAR (25), LAST\_NAME VARCHAR (25), SALARY NUMBER (15), JOINING\_DATE DATETIME, DEPARTMENT CHAR (25)); TABLE Bonus (WORKER\_REF\_ID INT, BONUS\_AMOUNT NUMBER (10), BONUS\_DATE DATETIME, FOREIGN KEY (WORKER\_REF\_ID), REFERENCES Worker (WORKER\_ID)); TABLE Title (WORKER\_REF\_ID INT, WORKER\_TITLE VARCHAR (25), AFFECTED\_FROM DATETIME, FOREIGN KEY (WORKER\_REF\_ID) REFERENCES Worker (WORKER\_ID)); Consider above 3 tables, assume appropriate data and solve following SQL queries 1. Print details of the Workers who are also Managers. 2. SQL query to clone a new table from another table. 3. Fetch the list of employees with the same salary. 4. Fetch "FIRST\_NAME" from Worker table in upper case.

10

OR

- (a) Write relational algebra expression for selection and projection operations. 05
- (b) Explain how to update existing data in a table. Provide an example. 05
- (c) What is Database constraints? Explain with example. 10
- Q.5 (a) What are the commands used for managing access to the database in SQL? 05
- (b) What is a primary key, and why is it important? How do you define it in SQL? 05
- (c) Explain types of Normalization in detail with example. 10

OR

- (a) What is the UNIQUE constraint? Give an example of how to use it. 05
- (b) Explain primary key with example? 05
- (c) Design an ER diagram for Library Management System and explain its components. 10