GYANMANJARI INNOVATIVE UNIVERSITY

GYANMANJARI INSTITUTE OF TECHNOLOGY

B.Tech.-Mid Semester Examination (MSE)- S2026

Enrollment No.:_____

Subject Code: BETCE14306 **Date:20/03/2026**

Subject Name: Database Management System **Semester: 4th**

Time: 02:30PM to 04:30PM **Total Marks: 60**

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)	Discuss disadvantages of file processing systems and advantages of DBMS.	05
	(b)	Explain Armstrong's axioms.	05
	(c)	Construct an E-R diagram for a car insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents. Each insurance policy covers one or more cars, and has one or more premium payments associated with it. Each payment is for a particular period of time and has an associated due date and the date when the payment was received.	10
Q.2	(a)	What is the role of a Database Administrator (DBA), and what are their responsibilities?	05
	(b)	Explain the basic operators in relational algebra.	05
		OR	
	(b)	What is a functional dependency in a relational database?	05
	(c)	What are SQL JOINs, and how do INNER JOIN, OUTER JOIN differ in terms of returning data?	10
		OR	
	(c)	Write a Query to perform GROUP BY, ORDER BY, and HAVING clauses in SQL.	10
Q.3	(a)	What is a Foreign Key constraint, and how does it maintain referential integrity between related tables?	05
	(b)	What is a data dictionary, and what role does it play in a database system?	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));	10

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.

OR

Q.3 **(a)** Write a Query following DDL commands: CREATE, ALTER, TRUNCATE, and DROP. **05**

(b) Describe the three levels of the ANSI SPARC database architecture. **05**

(c) **10**

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. Find out unique values of DEPARTMENT from Worker table
2. Print details of the Workers whose SALARY lies between 100000 and 500000.
3. Print details of the Workers who have joined in Feb'2014. 4.

Fetch worker names with salaries >= 50000 and <= 100000.

***** Best of Luck *****