POORNIMA UNIVERSITY, JAIPUR

END SEMESTER EXAMINATION, 2023-2024 EVEN SEMESTER

Write Roll No Below: _____

MCA All I () - II (Main/Back) End Semester Examination,

23MCACCA2102: Data Base Management System

Time: 3 Hours **Total Marks:** 60 **Min. Passing Marks:** 21/24/27 **Question Paper ID:** 001101

Instructions: Attempt all five questions. There is an internal choice either (a or b) in Q1 to Q5. Marks of each question or its parts are indicated against each question/part. Draw neat sketches wherever necessary to illustrate the answer. Assume missing data suitably (if any) and clearly indicate the same in the answer.

Bloom Level(BL): 1-Remembering, 2-Understanding, 3-Applying, 4-Analysing, 5-Evaluating, 6-Creating

Use of following supporting material is permitted during examination for this subject: Nil

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Q1. **(a)** (i) What is a Database Management System (DBMS), and what are its primary functions? **[6 Marks]** — **Marks 12 BL 2 CO 1**

(ii) Describe the three-schema architecture in a DBMS and discuss the purpose of each schema level. **[6 Marks]**

(OR)

(b) (i) Write the difference between hierarchical, network, and relational data models? **[6 Marks]**

(ii) Discuss the steps involved in designing a database using the Entity-Relationship (ER) model. Draw E-R diagram for schema: Employee(emp_id (primary key), emp_name, age(derived attribute),address(composite attribute),contact(multivalued attribute)). **[6 Marks]**

Q2. **(a)** (i) Discuss the various relational operations such as insert, delete, update, select, project, rename, union, intersection, minus, join, and division. Provide scenarios where each operation is applicable. **(6 Marks)** — **Marks 12 BL 3 CO 2**

(ii) What is functional dependency? Given a relation R (ABCDEF) with functional dependencies {A → B, B → C, CD → E, EF → A}, decompose R into 3NF (Third Normal Form) and explain each step of the decomposition process. **(6 Marks)**

(OR)

(b) (i) What is a distributed database, and how does it differ from a centralized database? Discuss the advantages and challenges of distributed databases. **(6 Marks)**

(ii) Explain the concept of normalization in RDBMS and discuss the different normal forms (1NF, 2NF, 3NF, and 4NF).Provide examples to demonstrate each normal form. **(6 Marks)**

Q3. **(a)** (i) What is Function? Create a function in PL/SQL to print number of employee of customer table. **(6 Marks)** — **Marks 12 BL 5 CO 4**

Customer

ID	NAME	AGE	ADDRESS	SALARY
1	Ramesh	32	Ahmedabad	2000.00
2	Khilan	25	Delhi	1500.00
3	kaushik	23	Kota	2000.00
4	Chaitali	25	Mumbai	6500.00
5	Hardik	27	Bhopal	8500.00
6	Komal	22	MP	4500.00

(ii) Write short note on following. Explain with example. (Any Two) **(6 Marks)**

1. IF-THEN-ELSIF statement
2. Exit Loop
3. Case statement

(OR)

(b) (i) What is Procedure? How to create procedures in PL/SQL? Write a PL/SQL code to find greatest number using procedure takes two numbers using the IN mode and returns their minimum using the OUT parameters. **(6 Marks)**

(ii) What is PL/SQL loops? Develop a PL/SQL program using a LOOP structure to calculate the factorial of a given number. **(6 Marks)**

Q4. **(a)** (i) What is trigger? What are the different types of triggers available in Oracle? **(6 Marks)** — **Marks 12 BL 3 CO 5**

(ii) Explain the concept of Oracle Memory in database systems. **(6 Marks)**

(OR)

(b) (i) Define PL/SQL packages. How to create package in PL/SQL? **(6 Marks)**

(ii) Write a program to demonstrate the use of Triggers in PL/SQL code blocks. **(6 Marks)**

Q5. (a) (i) Given three tables who's named **STUDENT, COURSE, STUDENT_COURSE** Write queries for below table:- **(6 Marks)**

Marks 12 **BL** 3 **CO** 3

STUDENT

S_ID	S_NAME	S_ADDRESS	S_PHONE	S_AGE
S1	RAM	DELHI	9455123451	18
S2	RAMESH	GURGAON	9652431543	18
S3	SUJIT	ROHTAK	9156253131	20
S4	SURESH	DELHI	9156768971	18

COURSE

C_ID	C_NAME
C1	DSA
C2	Programming
C3	DBMS

STUDENT_COURSE

S_ID	C_ID
S1	C1
S1	C3
S2	C1
S3	C2
S4	C2
S4	C3

1. Find out **S_ID** who are enrolled in **C_NAME** 'DSA' or 'DBMS'.
2. Retrieve the names of students who are enrolled in the 'Programming' course.
3. Retrieve the names and ages of students who are enrolled in more than one course:
4. Retrieve the names of courses taken by the student with ID 'S1':
5. Retrieve all courses taken by the student named 'RAM'.
6. Retrieve all students who are enrolled in courses with the word 'Programming' in their name.

(ii) Write a SQL queries for following statements in sequential manner :- **(6 Marks)**

1. Create table stud_info with attribute(rollno as primary key, Stud_name,class)
2. Add age and contact column with appropriate datatype.
3. Modify the size of the class column
4. Change the name of the Stud_name into Name.
5. Delete contact column.
6. Insert 5 records in stud_info table.
7. Change the name of the table with student.
8. Retrieves all records presented into student table

(OR)

(b) (i) What is DML and DCL commands? Explain all command with syntax and appropriate examples? **(6 Marks)**

(ii) Write the output of following queries :- **(6 Marks)**

1. SELECT to_date('2024-02-13', 'YYYY-MM-DD') FROM dual;
2. SELECT to_char(sysdate,'ddsp-mmsp-yyyy day') from dual;
3. SELECT SIGN(10);
4. SELECT CEIL (15.26);
5. SELECT FLOOR(-29.26);
6. SELECT initcap('hello world') FROM dual;
7. SELECT TRUNCATE(94.4955, 2);
8. SELECT instr('hello world', 'world') FROM employee;
9. SELECT POW(2, 4);

*****End of Question Paper*****