Reg. No ....   Name **23U143**

END SEMESTER EXAMINATION : NOVEMBER 2023
SEMESTER 1 : INTEGRATED M.Sc. PROGRAMME COMPUTER SCIENCE AND DATA SCIENCE
COURSE : **21UP1CRMCP3 : DATABASE MANAGEMENT SYSTEMS**
(For Regular 2023 Admission and Improvement/Supplementary 2022/2021 Admission)

Time : Three Hours   Max. Weightage: 30

PART A
Answer any 8

1. Expand the term OLAP.
2. The _____ command is used in SQL to change the structure of a table.
3. Given the following relation, find the degree of the relation:
   INVENTORY (item_no, item_name, item_price, item_doe)
4. Define the term database subschema.
5. State the condition to be satisfied for a relation to be in 1NF.
6. The _____ data type in SQL represents unstructured binary data.
7. Define the term tuple.
8. Write a sample query to view the complete details of table named 'STUDENT'.
9. Define the term domain of an attribute.
10. Define the term instance of a database.

(1 x 8 = 8 Weight)

PART B
Answer any 6

11. List all the values that may come in the domain of the attribute 'district' (of Kerala).
12. Discuss briefly about any two date functions in SQL.
13. Discuss the command to create table in SQL along with the specification of key constraints.
14. Differentiate between conceptual and external schema.
15. Explain briefly the natural join operation in relational algebra.
16. Discuss the atomicity issues of file systems.
17. Describe the concept of referential integrity in a relational data model.
18. Differentiate between centralized and distributed databases.

(2 x 6 = 12 Weight)

PART C
Answer any 2

19. Consider the following relational schema and write sample queries for the questions that follow:
    WORKER (worker_id, first_name, last_name, salary, joining_date, department)
    BONUS (worker_ref_id, bonus_date, bonus_amount)
    (i). Display the details of workers who have first name as 'John' and 'Alice'.
    (ii). Display the details of workers who have salary between 10000 and 20000.
    (iii). Display the ID and bonus amount of workers who work in 'Administration' department.
    (iv). Display the average bonus given to the workers.

20. Explain the reasons behind choosing a Database Management System instead of simply storing data in Operating System files. In addition, discuss when would it make sense not to use a Database Management System.

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21. Explain about any two relational algebra operations from set theory.
22. Explain briefly about distributed databases.

(5 x 2 = 10 Weight)