(***Please write your Exam Roll No.***) ***Exam Roll No ……***

END TERM EXAMINATION

FIRST SEMESTER SUPPLEMENTARY EXAM [MCA] DECEMBER, 2023

Paper Code: MCA -107 **Subject: Data Base Management Systems**

Time: 3 Hours **Maximum Marks: 60**

Note: Attempt FIVE questions in all. Question No. 1 is compulsory and attempt one question from each unit.

1. Answer all the following questions briefly:- 2 x 10 = 20
   (a) What is relational data integrity?
   (b) What do you understand by object-oriented database management systems.
   (c) What is Access – DBMS or RDBMS? Justify
   (d) What do you mean by an object identifier? What is the role of a persistent class?
   (e) Compare procedures and functions in PL/SQL.
   (f) Explain the role of indexing in a file. How does an index is created using SQL command.
   (g) Write ACID properties of a transaction.
   (h) What do you mean by DDL commands in SQL?
   (i) If the primary key of a relation schema R has one attribute in it, in which normal form this schema R at least will be? Justify answer.
   (j) Explain weak entity set. How does its candidate key is computed?

UNIT - I

2. (a) What are different database users? Explain three roles of database administrator. 5
   (b) Write a short note on: 5
      (i) Entity-Relationship Diagram
      (ii) Schemas and instances
3. (a) Draw in ER diagram of Railway Management system. Explain in detail. 5
   (b) What are weak entities? And with example show how they are converted into strong entities? 5

UNIT - II

4. (a) Write a short note on domain and key constraint. 5
   (b) Discuss tuple relational calculus and domain relational calculus. 5
5. (a) Write a short note on DML, DDL, DCL and TCL. 5
   (b) Elaborate set operations UNION, INTERSECTION and MINUS while providing suitable examples. 5

UNIT - III

6. (a) For given relation R= {A, B, C, D, E} FDs= {A→BC, CD→E, B→D, E→A}. Find Primary Key and normalize till 3 NF. 5
   (b) Consider a relation R (A B C D E F) with following FDs: F = {A→BC, C→A, D→E, F→A, E→D} Is the decomposition of R into R1(A C D), R2(B C D) and R3(E F D) lossless? 5
7. (a) State the difference between functions and stored procedures in PL/SQL. 5
   (b) Explain with suitable examples what are the anomalies that can be found in badly designed database. Explain with suitable example that BCNF is stronger than 3NF. 5

UNIT - IV

8.	(a)	Write a short note on log-based recovery and deadlock handling.	5
	(b)	Elaborate various ways to test serializability of the schedule.	5
9.	(a)	Discuss serializable schedules? How can we ensure that a given schedule is serializable?	5
	(b)	Discuss the database security concepts.	5

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