National Institute of Technology, Hamirpur (H.P.)

End-Semester Theory Examination – November-2023
Title of the Course: <Data Base Management Systems >
Class: B.Tech. (Mathematics and Computing)

Course Code: MA-313	Semester: 5th
Duration: 03:00 Hours	Max. Marks: 50

Instructions:

> All Questions are compulsory.
> Marks are given against each question.

1. Define database management system and its applications. Discuss the three schema DBMS architecture with neat diagram. **[03+03 Marks]**

2. What is mean by ER diagram? Discuss the entity sets, Attributes and relationship sets along with their symbols. Draw an ER diagram for library management system with at least five entity types. **[01+ 03+03 Marks]**

3. Write the SQL query of the following: **(04 Marks)**
   I. Find the faculty details whose name start with letter 'A'.
   II. Find the faculty details whose name end with letter 'N'.
   III. Find student marks whose name starts with letter 'P' and contains only 5 letters in name.
   IV. Find the faculty details whose name does not contains second letter 'A'.

4. Consider the relation R= {A, B, C, D, E, F, G} and set of FDs F= {AB->C, BC->DE, D->F, CF->G} then find the closure of attributes A, D and BC. **[02 Marks]**

5. What is mean by normalization? Discuss 1NF, 2NF and 3NF with suitable examples. **[07 Marks]**

6. Define a Schedule. Discuss the procedure to check Conflict Serializabilty. Check whether the given Schedule S is conflict or not-
   S: R1(A), R2(A), R1(B), R2(B), R3(B), W1(A), W2(B).   **[01+02+02 Marks]**

7. Define the concurrency problem. Discuss the term like dirty read problem, unrepeatable read problem, lost update problem, and phantom read problem with suitable examples. **[01+06 Marks]**

8. Discuss the **ACID** properties of the database transaction with proper examples. **[06 Marks]**

9. Write a short on Distributed, Parallel, Deductive and Multimedia databases. **[06 Marks]**

*********ALL THE BEST*********