Roll. No. 43

NATIONAL INSTITUTE OF TECHNOLOGY, HAMIRPUR (H.P.)
Computer Science and Engineering Department
End Semester Examination

Subject: CS-606
Advances in DBMS
Branch: *M.Tech.(CSE) (2nd Semester).*

Time: 3 hours.
Maximum Marks: 60

Note: *Attempt all questions.*
All questions are of 6 marks.

1. What are the drawbacks of using file systems to store data? Discuss various levels of abstraction for DBMS?

2. With the help of suitable example explain the following basic operators of relation algebra: Set difference, Cartesian product and rename.

3. With the help of suitable example explain the following:
Domain Constraints, User defined data types, and JDBC.

4. 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.

5. Graph-based protocols are an alternative to two-phase locking. Explain *tree-protocol.* What are the advantages and disadvantages of graph protocols?

6. Deadlock prevention protocols ensure that the system will never enter into a deadlock state. How deadlock is prevented by *wait-die* and *wound-wait* schemes?

7. What is the use of functional dependencies on relation? What are the advantages of normalizing a relation? Explain BCNF?

8. Briefly explain the following:
   a. Temporal Data.
   b. Spatial and Geographic Databases.
   c. Multimedia Databases.

9. Describe the storage architecture of DB2 with help of neat diagram.

10. With respect to following transactions, explain why they are non-conflicting. Whether the result is preserved or not? Justify your answer.

T_1	T_2
read(A)	
$A := A - 50$	
write(A)	
	read(B)
	$B := B - 10$
	write(B)
read(B)	
$B := B + 50$	
write(B)	
	read(A)
	$A := A + 10$
	write(A)