

**Model Paper – 2**  
**Hi-Tech Institute of Engineering & Technology**  
**B.C.A. Examination**  
**(Semester-3<sup>rd</sup>) Odd Semester**  
**Introduction to DBMS**  
**(BCA-501)**

**Time: 3 Hours**

**Maximum Marks: 75**

**Faculty Name:** Ms. Charu Singh

**Note:** Attempt questions from all sections as per instructions.

**Section – A**

**Note:** Attempt all questions.

5 x 3 = 15

1. What is functional dependency?
2. What is Transaction? Explain it.
3. Explain advantage of database management system over file oriented system.
4. What do you mean by DML and DDL?
5. What are the advantages of file processing system which were removed by DBMS?

**Section – B**

**Note:** Attempt any two questions.

2 x 7.5 = 15

6. Explain specialization and generalization concepts in ER diagram with suitable example.
7. What are the pitfalls of lock based protocol?
8. Why should normalization be performed on a table and what are its benefits. Explain 1NF and 3NF.

**Section – C**

**Note:** Attempt any three questions.

3 x 15 = 45

9. (a) Why the concurrency control is needed? Explain it.  
(b) Describe different methods of indexes?  
(c) Explain ACID properties.
10. What are schedules? What are the differences between conflict serializability and view serializability?
11. What are the characteristics of SQL? Discuss the five aggregate functions with suitable example.
12. Explain three level architecture of DBMS.
13. Describe selection, projection and join operators of relational algebra with suitable example.