

**Tribhuvan University  
Institute of Science and Technology**

**2073**

Bachelor Level/ First Year/ First Semester/ Science  
**Computer Science and Information Technology (CSc. 253)**  
(Database Management System)

Full Marks: 60  
Pass Marks: 24

*Candidates are required to give their answers in their own words as far as practicable.  
The figures in the margin indicate full marks.*

**Attempt All Questions**

1. Answer the following questions in short: (5 x 2)
  - a) Differentiate between Database Manager and database Administrator.
  - b) Relational database
  - c) Data encryption
  - d) Lock base protocols
  - e) Deadlock handling
  
2. (a) What do you mean by Entity-relationship model? Explain strong and weak entity set. (6)  
(b) What is composite attributes? Explain. (4)
  
3. (a) Which part of the RDBMS taken care of the data dictionary? Explain. (4)  
(b) What do you mean by Hierarchical model? Explain. (6)
  
4. (a) Explain the functional dependency and trivial functional dependency with examples. (5)  
(b) Differentiate between distributed DBMS and client-server DBMS. (5)
  
5. Comparison between 1NF, 2NF, 3NF and BCNF with example. (10)
  
6. (a) Explain the concurrency control mechanism in detail with example. (6)  
(b) What are the methods used to prevent the system from dead lock? (4)