

**Tribhuvan University**  
**Institute of Science and Technology**

**2073**

Bachelor Level/ Fourth Year/ Seven Semester/ Science  
Computer Science and Information Technology (CSc. 401)  
(Advanced Database Management System)

Full Marks: 60  
Pass Marks: 24  
Time: 3 hours

*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. Discuss different constraints of specialization and generalization.
2. Draw an ER diagram for a hospital with a set of patients and a set of doctors. Associated with each patient a log of various tests and examinations conducted.
3. Define encapsulation? How is it used to create abstract data types?
4. What is versioning? Why is it important? What is the difference between versions and configurations?
5. What is object relational database? Discuss object relational features of SQL.
6. Define active database. Discuss some applications of active databases.
7. What are the difference between valid time, transaction time, and bitemporal relations?
8. What is data mining? Discuss data mining as a part of knowledge discovery process.
9. What is data warehouse? Discuss the typical functionality of data warehouse.
10. What is mobile database? Discuss the characteristics of mobile environments.

**IOST, TU**