

Tribhuvan University
Institute of Science and Technology
2078

Bachelor Level / fourth-semester / Science Full marks: 60 **Computer Science and Information Technology(CSC260)** Pass marks: 24 (Database Management System) 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.

Section A

Long Answer Questions.

Attempt any Two questions. (2 x 10 = 20)

1. What are different types of Database users and their roles? Explain Data independence with examples.
2. What are the components of the ER diagram? Explain the function of various symbols used in ER diagrams. Construct an ER diagram to store data in a library of your college.
3. Explain deadlock and starvation. Explain Timestamp based protocol for concurrency control?

Section B

Short Answer Questions.

Attempt any Eight questions. (8 x 5 = 40)

4. What is the difference between logical data independence and physical data independence?
5. Explain Relationship and Relationship sets with examples.
6. Retrieve the TName, SName, SPhone for "ABC" school using SQL from the given relation as below.

TEACHER(TID, TName, TAddress, TQualification)

SCHOOL(SID, SName, SAddress, SPhone)

SCHOOL_TEACHER(SID, TID, No_of Period).

7. What is integrity? Explain different types of database integrity.
8. Define Functional dependencies. Explain trivial and non trivial dependencies?
9. Explain the difference between "Join" and "Natural Join" of algebraic operators with examples.
10. What are Checkpoints in database recovery? How does it help in database recovery? Explain.
11. Define schedule and serializability. How can you test the serializability?
12. Explain Boyce-Codd normal form with example. How it is different from the 3rd Normal form.