TRIBHUVAN UNIVERSITY
FACULTY OF MANAGEMENT
Office of the Dean
2016

Full Marks: 40
Time: 2 hrs.

BIM / Fourth Semester / IT 220 / ITC 218: Database Management System

Candidates are required to answer all the questions in their own words as far as practicable.

Group "A"

Brief Answer Questions: *[10 × 1 = 10]*

1. List any four major characteristics of DBMS.
2. What do you mean by data abstraction?
3. What is use of Entity Relationship Diagram?
4. What happens if a view is updated?
5. Why do we need normalization?
6. What is the advantage of creating primary key in a table?
7. How can authorization and authentication be implemented using SQL commands?
8. Write down the uses of GROUP BY clause.
9. Why do we need data recovery mechanism?
10. What is concurrency control in database management system?

Group "B"

Exercise Problems: *[5 × 4 = 20]*

11. Normalize the following schema, with given constraints, to 3NF.

    books(isbn, title, author, publisher)

    users(userid, name, deptid, deptname)

    Given functional dependencies:

    isbn → title

    isbn → publisher

    isbn → author

    userid → name

    userid → deptid

    deptid → deptname

12. SoftNEP Pvt. Ltd., an IT Firm provides multiple services to its client. A client can take multiple services with a service start date and service end date. A client has to pay annual to renew the service for another year.

    Draw the ER-model for the given scenario (assuming any other relevant facts if necessary).

13. Write SQL statements of create tables for following entities:

    Person(pid, name, address)

    Class(classid, pid, total_number_of_students)

https://genuinenotes.com

14. Define serial schedule with an example. Explain various transaction states in the database.

15. Explain Basic Timestamp Ordering (TO) Protocol of concurrency control technique.

Group "C"

Comprehensive Answer Questions: *[2 × 5 = 10]*

16. Consider the following relations

    Users(userID, username, password, email, dateOfBirth, gender, registeredDate)
    Categories(categoryID, categoryName, upperLimit)
    Expenses(expenseID, spentDate, amount, categoryID, userID)
    Write down the SQL statements for the following:

    a. Insert a new user.
    b. Find users whose date of birth is before Jan 01, 2000.
    c. Find top 5 categories on which users spend their money.
    d. Find categories in which no expenditure has been made so far.
    e. Find those users whose expenditure is not less than that of userID 405.

17. Define different types of joins and differentiate between join operation and sub query.

https://genuinenotes.com