



Tribhuvan University
Faculty of Humanities & Social Sciences
OFFICE OF THE DEAN
2024

Bachelor in Computer Applications
Course Title: Database Management System
Code No: CACS 255
Semester: IV

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

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

Group B

Attempt any SIX questions.

[6×5 = 30]

2. Define database system. Write the merits and demerits of DBMS. [1+2+2]
3. Draw and explain three schema architecture of the database system. [2+3]
4. What are an entity and its attributes? Write the difference between a strong and weak entity set with an examples [2+3]
5. Why integrity constraints are used in databases? Explain different types of integrity constraints with examples. [2+3]
6. What is functional dependency? Explain its types with examples. [5]
7. Differentiate between discretionary access control and mandatory access control with example. [2+3]
8. Write the ACID properties of transactions. Explain the concepts of serializability in database transactions. [2+3]

Group C

Attempt any TWO questions.

[2×10 = 20]

9. Why normalization is required in database? Explain the 1NF, 2NF and 3NF of normalization with example [2+8]
10. How participation constraints are used in ER diagram? Explain. Also Construct an E-R diagram for a car insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents. Each insurance policy covers one or more cars and has one or more premium payments associated with it. Each payment is for a particular period and has an associated due date, and the date when the payment was received. [4+8]
11. Consider the following employee database, where primary keys are underlined
Supplier (supplier-id, supplier-name, city) 1
Suppliers (Supplier-id, parts-id, quantity) 3
Parts (part-id, par-name, color, weight) 2 3
 - a) Write a SQL query to create above table. [2]
 - b) Find the name of all suppliers who has supplied parts with quantity more than 10. [2]
 - c) Fine the name of all parts supplied by "RD Traders" [2]
 - d) Find the number of parts supplied by "S02" [2]
 - e) Find the name of all suppliers located in city "KTM" [2]