Bangladesh Army University of Engineering and Technology (BAUET)

Department of Computer Science and Engineering (CSE)

Semester: Summer-2023

Batch: CSE-14

Course Code: CSE-2211

Course Title: Database Management Systems

ClassTest-01

Full Marks: 15 **Time: 15 Minutes**

[N.B.: Answering all questions is compulsory. Figures shown in the right margin indicate full marks.]

Marks

Q.1 Explain the statement, "Pattern matching can be performed on strings". **05**

Q.2 Consider the following database schema; construct the expressions in SQL for each of the following queries. **10**

Student (ID, name, dept_name, GPA, city)

Department (dept_name, building, budget

i). Find those departments for which the average GPA is greater than the Music department.

ii). Find the name of the students who lives in Rajshahi and those departments in Panorama building.

iii). Find all tuple(s) from the relations who get the maximum GPA in the Finance department.

iv). Find all Students with a GPA between 3.50 and 3.99.

v). Add a new column named cell_num to the Students relation.

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Batch: CSE-14 ClassTest-02 Semester: Summer-2023

Course Code: CSE-2211 Course Title: Database Management Systems

Full Marks: 15 Time: 20 Minutes

		Marks
Q.1	Explain the difference between a weak and a strong entity set	**5**
Q.2	Design a generalization–specialization hierarchy for a motor-vehicle sales company. The company sells motorcycles, passenger cars, vans, and buses. Justify your placement of attributes at each level of the hierarchy. Explain why they should not be placed at a higher or lower level.	**10**

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ClassTest-02

Full Marks: 15 **Time: 20 Minutes**

[N.B.: Answering all questions are compulsory. Figures shown in the right margin indicate full marks.]

Marks

Q.1 Consider the following employee database schema, where the primary keys are underlined. Now construct the expressions in relational algebra for each of the following queries. **10**

branch(branch name, branch city, assets)
customer (customer name, customer street, customer city)
loan (loan number, branch name, amount)
borrower (customer name, loan number)
account (account number, branch name, balance)
depositor (customer name, account number)

i). Find the names of all depositors who have an account with a value greater than $8,000.

ii). Find the names of all depositors who have an account with a value greater than $10,000 at the "Natore" branch.

iii). Find all loan numbers with a loan value greater than $9,000.

iv). Find the names of all branches with customers who have an account in the bank and who live in "Pabna".

v). Show the customer name and account number who have the highest balance.

Q.2 i). List two reasons why null values might be introduced into the database. **2+3**

ii). Compare between the super key and the primary key.

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Batch: CSE-14 | ClassTest-04 | Semester: Summer-2023

Course Code: CSE-2211 | Course Title: Database Management Systems

Full Marks: 15 | Time: 35 Minutes

Marks

Q.1 You are given a main file that has unsorted attributes. Now, you think which indexing may be More appropriate for applying the main file and why? Provide an explanation in detail. **4**

Q.2 Construct a B+-tree for the following set of key values: M H T S R Q B A F D Z. Assume that the tree is initially empty and values are added in ascending order. Show the structure after every insertion. Order = 3 **7**

Q.3 Consider the B+ tree index shown below, delete the key 60 from the tree and show the new tree structure after deleting the key. **4**