National University, Bangladesh

B.Sc (Hon's) in Computer Science and Engineering

Part-2,4th Semester Examination-2019

CSE-520222, Database Management System Practical

Time: 3 Hours Full Marks:40

Answer any two of the following questions.

1. **Consider the following schemas for "car_insurance" database relations, where the primary keys are underlined.**

   Person (driver_id,name,address)
   Car(license,model,year)
   Accident(report_number,date,location)
   Owns(driver-id,license)
   Participatd (driver-id, car, report-number, damage amount)

   Write down the SQL expressions for the following queries:

   i. Add a new accident to the database (assume any values for required attributes).
   ii. Delete the Toyota belonging to "Simanto"
   iii. Find the total number of people who owned cars that were involved in accidents in 2012.
   iv. Update the damage amount for the car with license number "DHAKA2000" in the accident with report number "AR2197" to 50000/-

2. **Consider the following bank database relations, where the primary keys are underlined.**

   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)

   Write down the SQL expressions for the following queries.

   i. Find all customers who have account but no loan in bank.
   ii. Delete all loan amount between 5000/- and 15000/-
   iii. Add a record in the database using a form.
   iv. Display your result of query (a) on a report.

3. **Consider the employee database consisting of the following relations, where the primary keys are underlined.**

   Employee (employee-id, employee-name, street, city)
   Works (employee-id, company-name, salary)
   Company (company-name, city)
   Manager (employee-id, manager-name)

   Write down the SQL expressions for the following queries:

   i. Find the company that has the most employees.
   ii. Find the average salaries at each company.
   iii. Find all employees who live in Dhaka city, but their company is not in Dhaka.

4. **Consider the banking database consisting of the following tables, where the primary keys are underlined.**

Branch (branch-name, branch-city, assets)
Customer (customer-name, customer-street, customer-city)
Loan-account (loan-number, branch-name, amount)
Borrower (customer-name, loan-number)
Saving-account (account-number, branch-name, balance)
Depositor (customer-name, account-number)

Write down the SQL expressions for the following queries:

i. Find all customers of the bank who have both loan and a saving account.
ii. Find all average account balance at each branch.
iii. Deduct 1% service charge from saving account balance that have both loan and a saving account other wise deduct 2% service chare from saving account balance.

5. **Consider the following relational schema**

Employee (empno, name, office, age)
Books (isbn, title, author, publisher)
Loan (empno, isbn, date)

Write down the SQL expressions for the following queries:

i. Print the names of all employees who have borrowed any book published by "XYZ"
ii. Print the names of all employees who have borrowed all book published by "XYZ"
iii. For each publisher, print the names of employees who have borrowed more than five books of that publisher.

6. **Consider the employee database consisting of the following tables, where the primary keys are underlined.**

Employee (employee-name, street, city)
Works (employee-name, company-name, salary)
Company (company-name, city)
Manages (employee-name, manages-name)

Write down the SQL expressions for the following queries:

i. Find the names, cities and salaries of all employees who work for PubaliBankLtd..
ii. Find the total salaries of each company.
iii. Add and record in the database using a form.
iv. Display your result of query (a) on a report.

Marks Distribution for two Experiments:

Theory	:10 x 2=20
Implementation	: 5 x 2=10
Viva Voce	: 5 x 2=10
Total	: 40

National University

B.Sc(Hons) in Computer Science and Engineering

Part-2, 4th Semester Final Examination-2019

Session : 2017-2018

CSE-520224(Microprocessor and Assembly Language Lab)

Time-3 hours **Full Marks-40**

Answer one from each part.

Part-A

1. Write an assembly language program to display a string ten times in different line using macro.
2. Write an assembly language program to read a character. If it is "y" or "Y", display it; otherwise terminate the program.
3. Write an assembly language program to convert a lowercase letter to an uppercase letter.
4. Write an assembly language program to display all alphabetic characters.
5. Write an assembly language program to determine whether a number is odd or even.
6. Write an assembly language program to add two decimal numbers.
7. Write an assembly language program to input two numbers, compare them and display the smaller one.

Part-B

8. Write an assembly language program to find the largest element from an array.
9. Write an assembly language program to calculate the average of a series of numbers.
10. Write an assembly language program to calculate the following expression

$$Y = M + N - P + 1$$

11. Write an assembly language program to calculate the following expression.

$$\begin{cases} (M - N).P & \text{if } X <= Y \\ \dfrac{M}{N} + P & \text{if } X > Y \end{cases}$$

12. Write an assembly language program to Compute $\sum_{i=1}^{n} (X_i Y_i)$.
13. Write an assembly language program to calculate the factorial of an integer number.
14. Write an assembly language program to sort a series of data in ascending order.
15. Write an assembly language program to accept a string from keyboard and display the string in reverse order.

Marks Distribution

i) Source Code----------20
ii) Result----------10
iii) Viva voce----------10

Total ----------40

National University, Gazipur
B.Sc.(HONS) in CSE Part-2 , 4th Semester Examination,2019
CSE-52022(Design and Analysis of Algorithms Lab)

Full Marks: 40 Time: 3 Hours

Answer any one of the following questions

1) Write a program to search an element from a given array using Binary Search algorithm.
2) Write a program to find the maximum and minimum numbers from a given array using Divide and Conquer method.
3) Write a program to measure & compare the performances of Bubble sort & Quick sort algorithms using time function.
4) Write a program to solve the Fractional Knapsack problem using Greedy method.
5) Write a program to find the minimum cost spanning tree using Prim's algorithm.
6) Write a program to solve the single source shortest path problem using Dijkstra's algorithm.
7) Write a program to solve the All Pairs Shortest Path problem using Floyd's algorithm.
8) Write a program to solve the 4-queens problem using Backtracking Method.
9) Write a program to solve the Sum of Subsets problem using Backtracking Method.
10) Write a program to solve the Graph Coloring problem using Backtracking Method.

Marks Distribution:

Algorithm	:	(10 X 1) = 10
Code	:	(15 X 1) = 15
Result	:	(05 X 1) = 05
Viva-voce	:	(10 X 1) = 10
		40