Daffodil International University

Department of Software Engineering

Faculty of Science & Information Technology

Final Examination, Fall 2023

Course Code: SE 121; Course Title: Structured Programming

Sections & Teachers: 40; AD (A, B, E, I), NT (C, H), KBB (D), MBH (G) MTM (F), RBM (J)

Time: 2 Hours   **Marks: 40**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1	a)	Harry is organizing a get together. He has a list of some objects. Help him to calculate the total numbers of pens, caps, hats and snack for a successful event. Apply nested loop to take inputs for building this 2D array and then find the sum of the objects.	*Marks 10*	CO2 L3

Sample Input:				Sample Output:
Pen	Cap	Hat		Sum of all elements of each column:
snacks				SUM of Pens: 14
2	6	3	4	SUM of Caps: 23
5	9	6	7	SUM of Hats: 18
7	8	9	8	SUM of Snacks: 19

2	a)	**Solve the following C code and write the proper output.**	*Marks 5*	CO3 L3

```c
#include <stdio.h>
#include <string.h>
#define str_size 100
void main()
{ char str[str_size];
        int i, len, vowel, cons;
        fgets(str, sizeof str, stdin);
        vowel = 0; cons = 0;
        len = strlen(str);
        for(i=0; i<len; i++)
        { if(str[i] =='a' || str[i]=='e' || str[i]=='i' || str[i]=='o' || str[i]=='u' || str[i]=='A'
|| str[i]=='E' || str[i]=='I' || str[i]=='O' || str[i]=='U') { vowel++; }
        else if((str[i]>='a' && str[i]<='z') || (str[i]>='A' && str[i]<='Z')) { cons++;}
        } printf("\nThe total number of vowel in the string is : %d\n", vowel);
        printf("The total number of consonant in the string is : %d\n\n", cons);}
```

			Marks	CO
b)	(i) Compare between string and array. (ii) Explain different methods to initialize a 2D array.		Marks 5+5	L2
3 **a)**	<u>Examine this code to identify the errors of this code and show the correct one.</u>		Marks 5	CO4 L4

```c
#include <stdio.h>
int add(int num1; int num2);
int multi(int num1; int num2);
int div(int num1, int num2);
int sub(int num1. int num2);
int main  {
        int n1, sum, Multiplication, division;
        printf("Enter two numbers: ");
        ScanF("%d, %d" &n1: n2);
        sum = add(n1, n2);
        Multiplication = multi(n1, n2)
        printf("Summation = %d", sum);
        printf("Multiplication = %d", &Multiplication);
        return 0;
}
int add(int num1, int num2) {
        s = num1 + num2;
    -   return s;  }
int multi(int num1, int num2) {
    s = num1 * num2;
        return s;  }
```

			Marks	CO
b)	<u>Construct a solution for the following scenario.</u>		Marks 10	CO4 L3

b) Imagine you are developing a student information system for a school. The provided C program captures the details of 10 students, including their name, roll number, and marks in Math, Science, and English utilizing structure in C. In the output, all of the captured information of the students as well as total marks of these mentioned three subjects will be printed.

Sample input:
Enter student name: Nusrat
Enter roll number: 1
Enter marks in Math: 90
Enter marks in Science: 90
Enter marks in English: 80

Sample output:
Student Information:
Name: Nusrat
Roll Number: 1
Marks in Math: 90.00
Marks in Science: 90.00
Marks in English: 80.00
Total Marks: 260.00