CITY UNIVERSITY

Department of Computer Science and Engineering

B. Sc. in Computer Science and Engineering

Semester: Fall 2024

Semester-Final Examination

Course Code: CSE- 1213   Total Marks: 150

Course Title: Structured Programming Language   Time: 2.5 hours

Year, Semester: 1ˢᵗ, 2ⁿᵈ   Date: . .2024

Instructions:
- Use separate answer scripts for each PART.
- Marks in the margin indicate full marks.
- Symbols and abbreviations bear their standard meaning.
- The corresponding course learning outcomes (CLOs) are given in the right-most column.
- The Psychometric Chart is going to be supplied separately (if need)

PART- A

Answer three questions including the compulsory question no. 1.

			Marks	CLOs
1.	(a)	Array declaration is very important in programming language. How can we declare array in programming language C?	05	2
	(b)		05	2

	Column 0	Column 1	Column 2	Column 3
Row 0	a[0][0]	a[0][1]	a[0][2]	a[0][3]
Row 1	a[1][0]	a[1][1]	a[1][2]	a[1][3]
Row 2	a[2][0]	a[2][1]	a[2][2]	a[2][3]

Which type of Array is shown in the above scenario? Write down the syntax for this array.

(c) Write a C program to find the lowest value from the shown below   15   3

$$a[10] = \{ 10, 9, 7, 20, 25, 40, 12, 78, 34, 15\}$$

2. (a) What do you mean by function? State the syntax to define the function in C programming.   5   1

(b) Some functions in C Programming are given below
sqrt(), get(), put() pow(), strcmp(), strlen(), strcpy(), strcat(), main(), anyFucntion(), addTwoNumbers()
What are the library functions for C Programming from the above given functions?   5   2

(c) Write a C Program for getting the output below using a function with multiple parameters.   15   3
Output of a C program:

Name: Al-Amin Age: 35
Name: Sabbir Age: 29
Name: Solaiman Age: 28

3. (a) File processing is a very important task in C. Now illustrate the necessary steps   10   3
to process the file.

  (b) An array S[10][15] is stored in the memory with each element requiring 4   15   3
bytes of storage. If the base address of S is 1000, determine the location of
S[8][9] when the array S is stored by (i) Row major (ii) Column major.

4. (a) Write down the output of the following program and find out errors if exists.   10   2

```c
#include<stdio h>
int main(){
int number = 30;
switch(number)
  {
case 20 :
printf("number is equals to 20");
case 30:
printf("number is equal to 10")
break;
default:
printf("number is not equal to 20 or 30");
  }
}
```

(b) Develop a C program using pointer to swap two numbers without using a 3rd   15   3
variable.
Sample output of the program is given below:
Before swap: *p1=20 *p2=30
After swap: *p1=30 *p2=20

PART- B

Answer three questions including the compulsory question no. 5.

5. (a) What is a file in C? why it is necessary in programming?   5   1

(b) Write down the output of the program and correct any error if exists.   10   2

```c
#include<stdio.h>
#include <>
int main(){
char ch[11]={'E', 'E', 'E', '\0'};
char ch2[11]="CSE";
printf("Char Array Value is: %s\n", ch);
printf("String Literal Value is: %s\n", ch2)
}
```

(c) Here is a output of a C program:

Enter First String: Dept. of CSE City University
Enter Second String: Dept. of CSE City University

Result: Strings are equal

In your opinion, which string function will be appropriate for getting the above actual output do you think? Also, write the code in C Programming using the appropriate string function, you must use gets() and puts() function for getting and printing outputs.

6. (a) We cannot directly copy one array to another, even if they have the same length and share the same data type. Now describe the technique to copy the elements of an array to another array. **10.   2**

(b) Write a c program to find out the summation of three numbers using function. **15   3**

7. (a) Define pointer. Why pointer is used in C? Write down the syntax to declare pointer in C. **10   1**

(b) Some functions for file handling are given below. Explain them all.
fopen(), fprint(), fscan(), fclose(), fputc(), fgetc(). **15   2**

8. (a) Write down the output of following program. **10   2**

```c
#include<stdio.h>
int main()
{
int i=0;
int marks[4];
marks[0]=40;
marks[1]=50;
marks[2]=60;
for(i=0;i<4;i++)
{
printf("%d \n",marks[i]);
}
}
```

(b) Factorial is the product of all positive integers less than or equal to a given positive integer and denoted by that integer and an exclamation! Thus, factorial seven is written as 7!, meaning $1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7$. Factorial zero is defined as equal to 1. Now your task is to write a program in C to find out the factorial of a given number n. **15   3**