United International University (UIU)
Dept. of Computer Science & Engineering (CSE)

Mid Term Exam:: Trimester: Fall 2022

Course Code: CSE 1111, Course Title: Structured Programming Language

Total Marks: 30 Duration: 1:45 hours

There are FIVE questions. Answer all the questions. Marks are indicated in the right margin.

Q.1 a) Rewrite the following code after correcting the errors. [2]

```
#includes <studio.h>
int main() {
        int a, b, float sum;
        scanf("%i", &a);
        a , b=10;
        a+b =sum;
        Printf("%d", &sum);
}
```

b) Identify the invalid variable names from the following. Mention the reasons that make them invalid. [2]

sum_of_digit, switch, calculate sum, _value_, Sum, calculate-sum, 1st_sum

c) Compute the values of the variables a, b, c, and d. [2]

```
int a = 17%7*5;
float b = (int)(17.0/5);
float c= 17/5;
int d = (a>b) && c;
```

Q.2 a) Find the output of the following C code segment. [3]

```
#include <stdio.h>
int main() {
   int num=3, sum = 10, i =7, j = 2;

   switch(num) {
        case 1:
        case 2:
                sum += --j*2;
                i--;
        case 3:
                sum = ++i*j--;
                break;
        case 4:
                sum *= i++/j--;
                i=i%j;
        default: break;
   }
   printf("%d %d %d",sum,i,j);
   return 0;
}
```

b) Re-write the given C code segment in Q.2(a) using the "if-else" statement without changing the logical meaning and output. [3]

Q.3 a) Write a complete program to print the following series up to nth term. Find the sum of the series. [3]

Sample Input	n = 6
Sample Output	0, 5, 18, 39, 68, 105, Sum = 235

[3]

b) Manually trace the following code. Show changes of all the variables (i, j, count) in each step.

```
int i, j, n=4, count = 0;
for (i = 1; i <= n; ++i) {
    for (j = 1; j <= n - i; ++j) {
        if (count <= n - 1) {
            ++count;
        }
    }
    count = 0;
}
```

[3]

a) Manually trace the given code segment. Show the changes of all the variables (i, j , size, arr elements) in each step.

```
int arr[5]={10,20,10,10,100}, size=5;
for(int i=0; i<size; i++){
    for(int j=i+1; j<size; j++){
        if(arr[i] == arr[j]){ for k=j, k<(size-1, ++k) {
            arr[k] = arr[k+1]; }
            size--;
            j--;
        }
    }
}
```

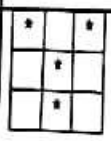
b) Write a program that reads n from user. Take n inputs into an array named marks of size 100, where n<=100. Find the maximum of only the even numbers in the array with its index. [3]

Sample Input	Sample Output
6 1 10 6 51 24 13	Maximum of even numbers = 24, at index 4.

a) Draw a flowchart for the code segment given below. [3]

```
int row = 10;
while (row >= 1) {
    int column = 1;
    while (column <= 10) {
        if(row%2)  printf("<");
        else  printf(">");
        ++column;
    }
    --row;
    puts("");
}
```

b) Write a C program to display the following 'Y' pattern for n, where n is always ODD. [3]

Sample Input	Sample Output
For, n=3	
For, n=5