



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.

[2]

Q1 a) Rewrite the following code after correcting the errors.

```
#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.

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

[2]

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

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

[3]

Q2 a) Find the output of the following C code segment.

```
#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]

Q3 a) Write a complete program to print the following series up to n^{th} term. Find the sum of the series.

[3]

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

- 2) Manually trace the following code. Show changes of all the variables (i, j, count) in each step. [3]
- ```

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;
}

```

- a) Manually trace the given code segment. Show the changes of all the variables (i, j, size, arr elements) in each step. [3]
- ```

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	<pre> * * * * * * </pre>
For, n=5	<pre> * * * * * * * * * * * * * * * </pre>