United International University (UIU)

Dept. of Computer Science & Engineering (CSE)

Mid Term Exam:: Trimester: Fall 2020

Course Code: CSE 1111/CSI 121, Course Title: Structured Programming Language

Total Marks: **20** Duration: 1 hour

There are FOUR Questions. Answer **all** the Questions. Marks are indicated in the right margin.

1 a) **Find the values** of the following variables, a, b, c, d, and e. For example, your STUDENT ID is 011202029 and therefore, the value of LAST_THREE_DIGIT_OF_YOUR_STUDENT_ID is 029. **Use your own student ID**. [2.5]

```
int a = LAST_THREE_DIGIT_OF_YOUR_STUDENT_ID %5;
int b = LAST_THREE_DIGIT_OF_YOUR_STUDENT_ID /5;
float c = LAST_THREE_DIGIT_OF_YOUR_STUDENT_ID /5;
float d = (float) LAST_THREE_DIGIT_OF_YOUR_STUDENT_ID/5;
float e = a*b-d/c;
```

b) **Find output** from the given code segment for **each** of the values of **choice** variable [2.5]

i) choice = LAST_THREE_DIGIT_OF_YOUR_STUDENT_ID
ii) choice = LAST_THREE_DIGIT_OF_YOUR_STUDENT_ID+11
iii) choice = LAST_THREE_DIGIT_OF_YOUR_STUDENT_ID+21

```
a = LAST_THREE_DIGIT_OF_YOUR_STUDENT_ID;
b = a + 10;
c = a + 20;
printf("BEGIN\n");
if ( choice < a )
   printf("UIU\n");
else if ( ( choice >= b) && (choice <= c) )
   printf("CSE\n");
else
   printf("NICE\n");
printf("END");
```

2 a) Show the **manual tracing** for the following code segment [2.5]

```
a = LAST_TWO_DIGIT_OF_YOUR_STUDENT_ID%2 + 3;
b = LAST_TWO_DIGIT_OF_YOUR_STUDENT_ID %2 + 2;
c = LAST_TWO_DIGIT_OF_YOUR_STUDENT_ID %2 + 4;

printf("START");
switch( a + b - c ){
        case 0:
                printf("\n %d  %d  %d", a, b, c);
                break;
        case 1:
                printf("\n %d  %d  %d", a*2, b*2, c*3);

        case 3:
                printf("\n %d  %d  %d", a+1, b+2, c+3);
                break;
```

```
        default:
                printf("\n %d  %d  %d", a-1, b-1, c-1);
         }
    printf("\nSTOP");
```

b) **Write a program** to perform the following operations [2.5]

i) Assign integer variable **a** by the LAST_THREE_DIGIT OF YOUR STUDENT_ID;

ii) Assign integer variable **b** by the (LAST_ONE_DIGIT OF YOUR STUDENT_ID+3);

iii) Increase **a** by 1

iv) Decrease **b** by 1

v) If a is less than b, output will be "Division not possible"

vi) If a is divisible by b, output will be a, b, quotient of a/b

vii) If a is not divisible by b, output will be a, b, quotient and remainder of a/b

3 a) Show the **manual tracing** for the following code segment and find output [2.5]

```
int n = LAST_THREE_DIGIT OF YOUR STUDENT_ID;
int i = n-2;
int sum = 0;
while( i <= n ){
   sum = sum+i;
   printf("\n%d  %d", i, sum);
   ++i;
}
printf("\n%d  %d", i, sum);
```

b) **Write a program** that calculates the summation of the following series [2.5]

a+(a+i)+(a+2i)+(a+3i)+…+(a+10i)

Where a = LAST_THREE_DIGIT OF YOUR STUDENT_ID and i = (LAST_ONE_DIGIT OF YOUR STUDENT_ID+2)

4 a) Show the **manual tracing** for the following code segment and find output [2.5]

```
int A[4]={0};
int i;
a = LAST_TWO_DIGIT_OF_YOUR_STUDENT_ID+1;
b = LAST_TWO_DIGIT_OF_YOUR_STUDENT_ID+2;
c = LAST_TWO_DIGIT_OF_YOUR_STUDENT_ID+3;
d = LAST_TWO_DIGIT_OF_YOUR_STUDENT_ID+4;
A[0]=a;
A[1]=b;
A[2]=c;
A[3]=d;
for(i=3; i>=0; --i){
    if(A[i]%2 == 0)
      printf("A[%d]=%d\n", i, A[i]);
}
```

b) **Write a program** to perform the following operations [2.5]

i) Declare a one-dimensional array A of size 10

ii) Store the number a, (a+i), (a+2i), (a+3i), …(a+9i) in the array A, Where a= LAST_THREE_DIGIT OF YOUR STUDENT_ID and i= (LAST_ONE_DIGIT OF YOUR STUDENT_ID+2)

iii) Print the numbers in array A on the monitor in reverse order.