United International University (UIU)

Dept. of Computer Science & Engineering (CSE)

Mid-Term Exam. **: : Trimester: Spring- 2019**

Course Code: CSI 121 Course Title: Structured Programming Language

Total Marks: **30** Duration: 1 hour 45 minutes

Answer all five questions. Figures in the right-hand margin indicate full marks.

1.

a. Find output for the following code segment using i) b=2, ii) b=6, iii) b=8, iv) b=11, and v) b=15 **[3]**

```
printf("UIU\n");
if((b>=2)&&(b<=6))
      printf("Hello\n");
else if((b>=6)||(b<=11))
     printf("Nice\n");
else
      printf("Error\n");
printf("\nCSE");
```

b. Write a program using **switch** statement to perform the following operations: **[3]**

i. Take input from keyboard for integer variable choice

ii. If the values of choice variable are 1, 2, and 3, the output will be "Hello", "UIU", and "CSE", respectively. Otherwise, output will be "Error".

2.

a. Show manual tracing for the following code segment **[3]**

```
i=10;
j=15;
printf("%d  %d\n", i, j);
for (k=i;  k<=j;  k++){
     if (k%2==0)
           printf("%d  %d\n", i+1, j+3);
     else
           printf("%d  %d\n", i+2, j+4);
     }
printf("%d  %d\n", i, j);
```

b. Write a program to find the sum of the following series up to n^{th} term, where n is given input integer from keyboard. Also show the sum value on monitor. **[3]**

$1+5+9+13+\ldots+n^{th}$ term

Sample input/output is given below

Input n	Sum	Output
1	1	1
2	1+5=6	6
3	1+5+9=15	15

3.

a. Show manual tracing for the following code segment **[3]**

```
for(i=4; i>=1; i=i-1){
    for(j=1; j<=i; j++ ){
        printf("%d", j);
    }
    printf("\n");
    }
```

b. Write a program to find the divisors of all positive integers from 1 to 6 **[3]**

Positive integer	Divisors	Output
1	1	1
2	1, 2	1 2
3	1, 3	1 3
4	1, 2, 4	1 2 4
5	1,5	1 5
6	1, 2, 3, 6	1 2 3 6

4.

a. Show manual tracing for the given code segment. Also find output for the segment **[3]**

```
int A[5]={10, 11, 12, 13, 14, 15};
int i;
for(i=5; i>=0; i--){
   if (A[i]%3 !=0){
       printf("A[%d]=%d\n",  i, A[i]);
    }
}
```

b. Write a program to generate output as the following for a given input integer n and 2D array A of size n x n, where A takes integer data from keyboard **[3]**

Input n	Two Dimensional Array A	Output
2	1 5 3 4	1 0 0 4
3	1 2 3 4 5 9 6 7 8	1 0 0 1 5 0 1 0 8
4	9 1 2 3 4 5 6 7 8 9 7 4 1 6 2 8	9 0 0 0 0 5 0 0 0 0 7 0 0 0 0 8

5. Show manual tracing for the given code segment. Also find output for the segment. **[6]**

```
int  i, k;
char str1[7]={'C', 'S', 'E', '\0'};
char str2[7]={'U', 'I', 'U', '\0'};
for(i=0;  str1[i]!='\0';  i++);
printf("%d\n", i);
for(k=0;  str2[k]!='\0';  k++){
      str1[i]=str2[k];
     ++i;
```

```
}
puts(str1);
printf("\n");
puts(str2);
```