Daffodil International University

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Final Examination, Semester: Fall 2017
Course Code: CSE 122 Course Title: Programming and Problem Solving
Section: All Course Teachers: All

Time: 2:00 hours **Full Marks: 40**

1. Output Tracing: What will be the output of the following code segments? 5x2=10

A)
```
#include<stdio.h>

int main()
{
 char  *str= "I am a DIU student";

     printf("\n 1. %s",  str);
     str=str+2;
     printf("\n 2. %s",  str);
     printf("\n 3. %c", *str);
     printf("\n 4. %s",++str);
     printf("\n 5. %c", *str);

 return 0;
}
```

B)
```
#include<stdio.h>

int fun(int *i, int j) {
    printf("\n 4. I=%d J=%d",*i,j);
    (*i)++;
      j++;
    printf("\n 5. I=%d J=%d",*i,j);
    return *i+j;
}

int main()
{
    int i=5,j=3,k=1;
    printf("\n 1. I=%d J=%d",i,j);
    k=fun(&i , j);
    printf("\n 2. I=%d J=%d",i,j);
    printf("\n 3. K=%d",k);
    return 0;
}
```

2. Problem solving: Write C programs to solve each of the following problems. 6 x 5 = 30

A) Read an integer **n**. Calculate and print the sum of all integers from **1** to **n**.

Sample Input: **5**
Sample Output: **15**

B) Read an integer **n**. Calculate and print the sum of all integers from **1** to **n** using recursion (Hint: you have to write a recursive function)

Sample Input: **5**
Sample Output: **15**

C) Create a function that takes 3 integer parameters and returns the multiplication of all 3 of them. Now write a program that reads 3 integers from user, send them to that function and print the returned result.

Sample Input: **2 5 6**
Sample Output: **60**

D) Create a structure named **Car** with the following attributes:

- **Model Name: String**
- **Maximum Speed: Integer**
- **Wheel Size: Double**

Now write a program that creates two variables of **Car** type named **Mercedes** and **BMW**. Read all three attributes for both the variables in your program and finally print them all in the format given in the sample below.

Sample Input: **Mercedes 250 10.2 BMW 280 10.6**
Sample Output:

Mercedes Model Name: Mercedes
Mercedes Maximum Speed: 250 kmph
Mercedes Wheel Size: 10.2 inches

BMW Model Name: BMW
BMW Maximum Speed: 280 kmph
BMW Wheel Size: 10.6 inches.

E) Read a string from input and print it's reverse.

Sample Input: **ghorar dim**
Sample Output: **mid rarohg**

F) Read 10 integers and store them in an array. Now swap the adjacent numbers in each pair.

Sample Input: **2 5 7 3 1 5 9 8 2 6**
Sample Output: **5 2 3 7 5 1 8 9 6 2**

Good Luck! ☺