

- 1 Show **manual tracing** for the following program and find the final output. In the program, last_three_digits_of_your_student_id means the last three digits of your student id from the right most. For example, Your Student ID= 011193127. So, last_three_digits_of_your_student_id=127.

```
#include<stdio.h>
int a, b;
int func1(float x);
void func2(int x, float y);
int main(){
    a=last_four_digits_of_your_student_id % 11;
    b=a*10;
    printf("%d %d\n", b, a);
    a=func1(5.5*a);
    printf("%d %d\n", a, b);
    return 0;
}
int func1(float x) {
    b=b*a;
    printf("%f\n", x);
    func2(5, 4.5);
    return b-1;
}
```

- 2 Find **output** for the following program. In the program, last_two_digits_of_your_student_id means the last two digits of your student id from the right most. For example, Your Student ID= 011193127. So, last_two_digits_of_your_student_id=27.

```
#include<stdio.h>
int a=last_two_digits_of_your_student_id;
void func(int x);
int main(){
    func(a);
    return 0;
}

void func(int x){

    if (x==a-3) return;
    else {
        printf("%d\n", x);
        func(x-1);
        printf("%d\n", x);
    }
}
```

- 3 Write a program using a user defined recursive function to implement the following code segment. main() will call the recursive function and print the value of sum.

```
int n, i, sum;
n= last_two_digits_of_your_student_id+3;
sum=0;
for (i=n-3; i<=n; i++){
    sum=sum+i;
}
printf("%d", sum);
```

- 4 Write a program having the structure student (name, id, marks) to perform the following operations for 4 students

- Read name, id, marks of 4 students from keyboard
- Find the minimum marks and the maximum marks holder students
- Calculate the average marks of all the students
- Display the following sample report on monitor.

Rahim	10	85.0
Saiham	20	85.4
Sabera	15	82.8
Farhan	18	80.0

Minimum marks holder student: Farhan 18
Maximum Marks holder student: Saiham 20
Average Marks: 83.3

- 5 What is the content of dest.txt

```
#include<stdio.h>
int main(){
    FILE *fp1;
    int i;
    float num[6]={10.0, 20.5, 30.6, 40.0, 50.5, 9.5};
    float sum;
    fp1= fopen("D:\\students\\dest.txt", "w");
    sum=0.0;
    for(i=5; i>=0; i--){
        if(i%2 !=0){
            sum=sum+num[i];
            fprintf(fp1, "%f\n", num[i]);
        }
    }
    fprintf(fp1, "%f", sum);
    fclose(fp1);
    return 0;
}
```

- 6 Write a program to do the following operations
- Read two floating numbers from a text file.
 - Add both the numbers and last four digits of your id.
 - Show the addition result in another text file.
- 7 Show **manual tracing** of the following code segment and find output.
- ```
char str1[12]={'\0'};
char str2[4]={'\0'};
int i, k;
strcpy(str1, "CSE");
strcpy(str2, "UIU");
i=strlen(str1);
for(k=0; str2[k]!='\0'; ++k)
 str1[i+k]=str2[k];
puts(str1);
printf("\n");
strrev(str1);
puts(str1);
strcat(str1, str2);
printf("\n");
puts(str1);
if(strcmp(str2, str1)<0)
 printf("\nCSE");
else
 printf("\nUIU");
```
- 8 Write a program that performs the following operations.
- Declare a global array "idValues" of int type and size 4 and initialize it with values  $a\%11 + 3i$ , Where  $a = \text{LAST\_FOUR\_DIGIT\_OF\_YOUR\_STUDENT\_ID}$  and  $i$  is the index of array.
  - Implement a "takeInput" function that takes values from keyboard and populate the "idValues" array.
  - Implement an "elementProd" function that takes an array and its size as parameters. It multiplies all the elements of the array "idValues" and returns the result.
  - In the main function:
    - Call the function "takeInput".
    - Call the function "elementProd" function passing the array and its size as arguments. Display the returned result.
  - Add appropriate prototypes of the functions.