C-Programming Lab Sheet
I Year / I Part
Faculty: Computer/Electrical/Civil

Labsheet#4

Objectives:

1. To familiarized with different parts of function such as function prototype and function definition.
2. Passing arguments by value and return statement to return the value from callee to caller.
3. Concept of local, global and static variable.
4. Recursive function

Objective#1

```
#inc1ude<stdio.h>
#include<conio.h>
void Italy();       /*function prototype*/
void brazil();
void main(){
        printf("\nI am in the main function\n");
        Italy();
        printf("I am finally back in the main function\n");
        getch();
}
void italy(){
        printf("I am in Italy function\n");
        brazil();
}
void brazil(){
          printf("I am in Brazil function\n");
}
```

Assignment 1.1: Using F8 to execute the program and see how the control is transferred from calling function to called function and return back to main function. Note down the output.

Objective#2

2.1 Write a program to add two number using user defined type function with no return type and with argument.

```
#inc1ude<stdio.h>
#include<conio.h>
void sum(int x, int y);   /* function prototype*/
void main(){
        int a, b;
        printf("Enter the number a, b: ");
        scanf("%d%d", &a, &b);
        sum(a, b);
        getch();
}
void sum(int x, int y){
        int c;
        c=x+y;
        printf("%d", c);
}
```

Assignment 2.1: Modify the above program with no return type no argument, with return type no argument, with return type and argument.

Assignment 2.2: WAP to find the factorial of a number using the function.

Objective#3

Concept of local, global and static variable

```
#inc1ude<stdio.h>
#include<conio.h>
void function();
int a, b=10;
void main(){
        a=20;  /*local variable*/
        printf("%d\n",a);
        function();
        getch();
}
void function(){
        int c;
        c=a+b;
        printf("%d",c);
}
```

Assignment 3.1: Note down the output and discuss why the output is 20 and 30.

Assignment 3.2: In the above program replace the statement a=20 by int a=20 and note the output and compare with output of above program.

3.2

```
#include<stdio.h>
#include<conio.h>
void increment();
void main(){
        increment();
        increment();
        increment();
}
void increment(){
        int i=1;
        printf("%d\n", i);
        i=i+1;
}
```

3.3

```
#include<stdio.h>
#include<conio.h>
void increment();
void main(){
        increment();
        increment();
        increment();
}
void increment(){
        static int i=1;
        printf("%d\n",i);
        i=i+1;
}
```

Assignment 3.2: Run the program 3.2 and 3.3 and note down the output. Discuss what is the difference between them and why.

Objective#4: Recursive Function

```
#inc1ude<stdio.h>
#include<conio.h>
int fact(int n);
void main(){
        int i,n,y;
        printf("enter the number n");
        scanf("%d",&n);
        y=fact(n);
        printf("the fact is %d",y);
        getch();
}
int fact(int a){
        int f=1;
        If(a<=0)
        return(f);
        else
        f=a*fact(a-1);
        return(f);
}
```

Assignment 4.1: Run the above program and enter the number 15 and explain why the factorial of 15 is not correct and modify the program to correct this error.

Assignment 4.2: WAP to find the sum of the series sum=1+2+3+4…..+n using recursive function.

Assignment 4.3: WAP to find the fibonacii series up to given number using function.