## Lab Assignment -6 FM: 10x2 = 20

1. Given three variables x,y,z, Write a function to circularly shift their values to right. In other words, if x=5, y=8, z=10, after circular shift y=5, z=8, x=10. Call the function with variables a, b, c to circularly shift the values.
2. The Fibonacci series (0, 1, 1, 2, 3, 5, 8, 13, 21, …) may be defined recursively as follows:
   fibonacci(0) = 0, fibonacci(1) = 1
   fibonacci(n) = fibonacci(n – 1) + fibonacci(n – 2).
   Write a recursive function to implement Fibonacci series.
3. Write a program where the function main() calls a recursive C function int squaresum(int n) which returns the sum $1^2 + 2^2 + \cdots\cdots\cdots + n^2$ .
4. Write a recursive function with prototype that takes a positive integer argument n and returns the power of two i.e. $2^n$ . Take $2^0 = 1$.
5. A given sequence $a_n$ is defined by the recurrence relation $a_n = a_{n-1} + a_{n-2} + a_{n-3}$, $n \geq 3$, $a_0 = 0$, $a_1 = 1$, $a_2 = 2$. Write a non-recursive C function that accepts a non-negative integer n as its argument and returns the value of $a_n$.
6. Write a program containing the function main(). Include a static local variable count initialized to 1. Post-increment and print the value of count each time function main is called. Call the function main() recursively and check the output.
7. Write a function distance to calculate the distance between two points (x1, y1) and (x2, y2). All numbers and return values should be of type double.
8. Rewrite the following program by taking the input to variable i from keyboard.

```
#include<stdio.h>
void main() {
    int i = 5, *p, **q;
    p = &i;
    q = &p;
    printf("Address of i = %u or p=%u or *q=%u\n", &i, p,*q);
    printf("Address of p = %u or q= %u\n", &p, q);
    printf("Address of q = %u\n", &q);
    printf("Value of i = %d or *(&i) = %d or *p = %d or **q=%d\n", i,*(&i),*p,**q);
    printf("Value of q = %d\n",q); }
```

9. Write a program to initialize pointers to an integer variable, a float variable and a character variable and then print the values and corresponding addresses using the expression with respective pointers of the variables.
10. Write a program where an integer pointer changes the value of an integer variable.