❖ **PRACTICAL : 5**

1. **Write a C program to calculate the following Sum: Sum=1-x^2/2! +x^4/4!-x^6/6!+x^8/8!-x^10/10!.**

```c
#include <stdio.h>
void main()
{
        float x,sum,t,d;
        int i,n;
        printf("Input the Value of x :");
        scanf("%f",&x);
        printf("Input the number of terms : ");
        scanf("%d",&n);
        sum =1; t = 1;
        for (i=1;i<n;i++)
        {
         d = (2*i)*(2*i-1);
         t = -t*x*x/d;
         sum =sum+ t;
        }
        printf("\nthe sum = %f\nNumber of terms = %d\nvalue of x = %f\n",sum,n,x);
}
```

OUTPUT:

```
Input the Value of x :2
Input the number of terms : 5

the sum = -0.415873
Number of terms = 5
value of x = 2.000000
```

2. **Write a C program to find the roots of a quadratic equation.**

```c
#include <math.h>
#include <stdio.h>
int main() {
   double a, b, c, discriminant, root1, root2, realPart, imagPart;
   printf("Enter coefficients a, b and c: ");
```

```c
    scanf("%lf %lf %lf", &a, &b, &c);

    discriminant = b * b - 4 * a * c;

    if (discriminant > 0) {
        root1 = (-b + sqrt(discriminant)) / (2 * a);
        root2 = (-b - sqrt(discriminant)) / (2 * a);
        printf("root1 = %.2lf and root2 = %.2lf", root1, root2);
    }

    else if (discriminant == 0) {
        root1 = root2 = -b / (2 * a);
        printf("root1 = root2 = %.2lf;", root1);
    }

    else {
        realPart = -b / (2 * a);
        imagPart = sqrt(-discriminant) / (2 * a);
        printf("root1 = %.2lf+%.2lfi and root2 = %.2f-%.2fi", realPart, imagPart, realPart,
imagPart);
    }

    return 0;
}
```

OUTPUT:

Enter Coefficients a,b and c : 2.3, 4, 5.6
Root 1 = -0.87+1.30i
Root 2 = -0.87-1.30i