**CLASSWORK APPLICATIONS FOR FUNCTIONS-PART 1 and 2**

**Q1.** Write a main function and programmer defined function that gives the sum of its two double parameters.

**Q2.** Write a function that calculate the power of a given number. Don’t use the pow() function. The function prototype is given as follows.

double power(double number, int po);

**Q3.** Write a program that defines a function to return the maximum absolute value of two double variable types.

**Q4.** Write a programmer-defined C++ function QSQRT(X) that returns a value according to the following rules:

X1/2 for X > 0

Zero for X = 0

-(-X)1/2 for X < 0

**Q5.** Write a main function and programmer defined function to calculate the function (given below) and its derivative. x must be given in the main function. The value of function and its derivative must be displayed in the main function.

**Q6.** Write a C++ program to calculate the shear stress () and twist angle () of a circular shaft. The calculations must be done in a function named as SHAFT. The torque (), lenght (), radius () and modulus of rigidity () of the shaft must be given in the main function. The result must be displayed in the main function.

**Q7.** Write a C++ program to calculate the total surface area and the volume of a cylinder in a function named as CYLINDER. The height, and radius of the base are input from the keyboard in the main function. The outputs must be displayed in the CYLINDER function.

Height, H

Radius, R

Base = PIR2

Side = 2.PIR H

2.PIR

Cyl\_Area = 2.\*Base + Side

Cyl\_Volume = Base\*H

Cylinder

 A = Cyl\_Area

 V = Cyl\_Volume

**Q8.** Write a programmer defined C++ function to calculate summation of the numbers up to a given number and the factorial of this number. The main function is only used to call the function. All inputs and outputs must be given in the programmer defined function.

**Q9.** Write the function "sum" for the main function given below. It calculates the summation of its parameters and returns the results:

#include <iostream>

#include <cmath>

using namespace std;

int main(){

 cout<<sum(2,3)<<endl;

 cout<<sum(5,8,10)<<endl;

 cout<<sum(1,5,9,12)<<endl;

system("pause");

}

**Q10.** Find the output of the following program (without compiling).

#include <iostream>

#include <cmath>

using namespace std;

int p(int a,int b=1,int c=4){

 return a+b+c;

}

int main(){

 int x=3;

 cout<<p(x)<<endl;

 cout<<p(x,2\*x)<<endl;

 cout<<p(x,2\*x,3\*x)<<endl;

system("pause");

}

**Q11.** Find the output of the following program (without compiling).

#include <iostream>

using namespace std;

int p(int m, int n){

 switch(m){

 case(1):return n-1;break;

 case(2):return n+1;break;

 default:return 0;}}

double p(double x, double y){

 if(x>y)return x+y;

 else return x-y; }

int main(){

 double a=1.5;

 for(int k=1;k<=2;k++){

 cout<<p(k,2\*k)<<endl;

 cout<<p(a,k\*a)<<endl;}

 system("pause");}