**Lab-09**

**Instructions:**

* Indent your code properly.
* Use meaningful variable names. Follow the naming conventions.
* Use meaningful prompt lines/labels for all input/output that is done by your programs.
* You are not allowed to discuss your problems with your fellows. If you feel any problem in understanding then you may ask your teacher or TA.

**Task:00**

First Implement the Task-06 of Lab-08 (if not implemented last time)

**Task: 01**

Write function(s) to execute the following main()function.

**int main()**

**{**

**cout << sum(1,2) << endl; *// should display 3***

**cout << sum(1,2,3) << endl; *// should display 6***

**cout << sum(1,2,3,4) << endl; *// should display 10***

**return 0;**

**}**

**Task:03**

Write a function which calculate Area of Circle and write function(s) the following in main() function

**int main ()**

**{**

**cout<<calculateArea()<<endl; //12.56 square units**

**cout<<calculateArea(2.0)<<end; /2.56 squareunits**

**}**

**Task: 02**

Write a function which receives a character (‘a’ to ‘z’ or ‘A’ to ‘Z’) and converts the receive character into uppercase. If you receive anything other than English alphabet then simply return it. The function prototype is as follows:

**char toUpper( char )**

**Task: 03**

Write a function, which takes starting and ending integer and print the ordered pairs on the screen:

***Sample output:***

Enter Starting number: 1

Enter Ending number: 5

(1,1) (1,2) (1,3) (1,4) (1,5)

(2,2) (2,3) (2,4) (2,5)

(3,3) (3,4) (3,5)

(4,4) (4,5)

(5,5)

**Task:04**

The formula for converting a temperature from Fahrenheit to Celsius is where F is the Fahrenheit temperature and C is the Celsius temperature. Write a function named convertToCelsius that accepts a Fahrenheit temperature as an argument.

The function should return the temperature, converted to Celsius.

Demonstrate the function by calling it in a loop that displays a table of the Fahrenheit temperatures 0 through 20 and their Celsius equivalents

**Task-05**

In physics, an object that is in motion is said to have kinetic energy. The following formula can be used to determine a moving object’s kinetic energy:

KE = 1⁄ 2 *m\*v\*v*

The variables in the formula are as follows: *KE* is the kinetic energy, *m* is the object’s mass in kilograms, and *v* is the object’s velocity, in meters per second.

Write a function named kineticEnergy that accepts an object’s mass (in kilograms) and velocity (in meters per second) as arguments. The function should return the amount of kinetic energy that the object has. Demonstrate the function by calling it in a program that asks the user to enter values for mass and velocity.

**Task-06**

Write a program in which you have to declare an array of 10 integers. Take input from user in that array.

* Display the array after taking all the input
* Display the array in reverse order
* Display only the odd indices
* Display the odd values only from input
* Display the prime values only form input (**Hint: you can use the isPrime(int) function** **Implemented in Lab:08)**

You can perform all the 4 displays one by one or you can make a menu driven program. But don’t make functions for this program. Write all code in main.