**PSG COLLEGE OF TECHNOLOGY, COIMBATORE – 641 004**

**DEPARTMENT OF APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCES**

**I M.Sc SS (18.7.19) / TCS(16.07.19) - C Programming Lab**

1. Write a program that accepts the heights in inches of an unknown number of people (i.e.the user will determine when the program has input enough people), then outputs the average height. The program should run until the user inputs a height less than 0.

2. Write a program that accepts the weight in pounds of an unknown number of packages (i.e.the user will determine when the program has input enough weights of packages), then outputs the average weight. The program should run until the user inputs a weight less than 0.

3. Write a program that uses a *for loop* to compute and output the cubes of the integers from –3 to 3.

4. Write a program that uses a *for loop* to output all possible solutions to the expression X2–y2 where *X* is an integer from 3 to 9 and *Y* is an integer from 2 to 4.

5. Write a program that uses *for loops* to output all possible solutions for the expression 6X3–5Y2–4Z+2 where *X* is an integer from 1 to 20, *Y* is an integer from–5 to 5, and *Z* is an integer from 3 to 17.

6. Write a program that receives a positive integer *n* from the user and outputs the sum of the integers from 1 to *n*. The program should use a *for loop.*

7. Write a program that receives a positive integer n from the user and outputs the factorial of the *n*. (factorial of *n*, written n!, is 1\*2\*3\*4\*…\*n). The program should use a *for loop.*

8. Write a program that receives two integer numbers *n* and *m*, then returns the sum of the integers from *n* to *m.* The program should use a *for loop.*

9. Write a program that receives an integer *n* from the user and a positive integer power *p* from the user. The program will compute *n* raised to the power *p* with a counter and *for-loop*, then outputs the value of *n* raised to the power *p*.

10. Write a program that sums the heights in inches of any number of people (i.e. the number of people will be determined by the program user), then outputs the average height. (Hint: The Boolean expression in the for loop can test for an exit value.)

11. Write a program that receives a prime number *P* by the user, outputs its Mersenne number. (A Mersenne number is defined as 2P–1 where *P* is a prime number.) The program should use a *for loop.*

12. In C, characters are actually a special case of integer. Each character in the type *char* is a representation of a numeric value from 0 to 255. If a *char* variable is assigned an integer value, the equivalent character will be created in the *char* variable. For example, if 65 is assigned to the char variable c, when c is output, the character A will appear.

int i=65;

char c=i;

printf (“%c is %d\n”,c,i);

*Output: A is 65*

Write a program that produces all 256 characters along side the numeric value of each character. The program should use a *for loop.*