

Due Date: 17th April, 2017

PMAS Arid Agriculture University Rawalpindi
University Institute of Information Technology

Programming Fundamentals

Important Note:

Assignments will be submitted on time. You will have 10 hours to submit the assignment after the due date & time. However, 10% marks will be deducted for every passing hour after the due time.

Copying/Cheating, whole or part of the assignment from anywhere without proper credit/references will not be tolerated. Whether you have copied or your work has been copied by someone else, you will get zero marks in that assignment.



What is a Data Type? What are various Data types available in C++?

Fill in the following Table

S#	Data Type	Allowed Minimum Value	Allowed Maximum Value

1. Write the C++ Code for each of the following Program
2. Write a Program in C++ to display your name on Screen.
3. Write a Program in C++ to find the product of 4 and 5.
4. Write a Program in C++ to find the cube of 7. Swap two numbers using third variables
5. Write a Program in C++ to find the area of a Circle. Formula to find the area of a Circle is given by

$$\text{Area} = \text{PI} * \text{R}^2$$

6. Write a Program in C++ to find the percentage of your First Semester All Subject results.
7. Write a Program in C++ to Convert the Temperature 45 which is in Celsius to Fahrenheit
8. Write a Program in C++ to find the percentage of your each Subject separately
9. Write a Program in C++ to Convert the Rs. 500 to Dollars (Assume 1 Dollar = 99 Rs)
10. Write a Program in C++ to Convert 57 Inches to Feet. (12 Inch = 1 Feet)
11. Write a Program in C++ to Convert 518400 Seconds to Minutes, Hours and Days, Weeks, Months and Years
12. Write a Program in C++ to find the solution of a **Quadratic Equation**
Consider a = 3, b = 5, c = 10
13. Write a Program in C++ to Print the Text as shown

```

|
|
|          Love
|
|                Pakistan
    
```

14. Use an if statement to compare the value of an integer called sum against the value 65, and if it is less, print the text string "Sorry, try again".
15. Write a C++ program to Find Largest Number among three numbers
16. Write a C++ program to Check Number is Palindrome or not
17. Write a c program to find largest among three numbers using conditional operator
18. Use a while loop to print the integer values 1 to 10 on the screen
12345678910

19. Use a nested while loop to reproduce the following output

1

22

333

4444

55555

20. Use if statement to compare the value of an integer called sum against the value 65, and if it is less, print the text string "Sorry, try again".

21. Write a Program in C++ to find whether the Input No is Positive, Negative or Zero.

22. Write a Program in C++ to find whether an Input No is 65 or less than 65

23. Write a Program in C++ to find whether two Input Numbers are equal or one is greater or less than other

24. Write a Program in C++ to find the square of an input no without using * Operator in C++.

25. Write a Program in C++ to find the remainder of two input Numbers without using % Operator in C++

26. Write a Program in C++ to test whether an Input No is Odd or Even

27. Write a Program in C++ to get the loop start and loop end condition and then find the sum of all nos between loop start and loop end value entered by user.

28. Write a Program in C++ to get the loop start and loop end value & then print all the Even Nos between loop start and loop end value entered by user in reverse Order.

29. Write a Program in C++ to get a value from user and then print all the Odd nos from 0 to the User provided value, if users enter negative value or Zero then ask the user to enter non-negative value.

30. Write a Program in C++ to find the sum of all the Input Nos. Your program should terminate and show the output as User enter -1111.

31. Write a Program in C++ to print the all Input Nos and Program should be terminated when user enter -1.

32. Write a Program in C++ to read a five digit no (for example: 345673) and then find

i. Print the five digit no in reverse order (for example if user enter 345673 then your program should display this no as 376543)

ii. Find the total Even nos in the five digit no

- iii. Find the sum of square of Odd nos in the five digit no
- iv. Find the location of each odd no in the five digit no
- v. Find which no is at location 4 in the five digit no (for example in the 345673, 7 is at location 4)

33. Write a Program in C++ to find whether an Input no is Prime or Not

34. Write a Program in C++ to find the factorial of an Input No.

35. Write a Program in C++ to show the output as shown below

```

*
*      *
*      *      *
*      *      *      *
*      *      *      *      *

```

36. Write a Program in C++ to show the output as shown below

```

1
1      2
1      2      3
1      2      3      4
1      2      3      4      5

```

37. Write a Program in C++ to show the output as shown below

```

8      8      8      8      8
8      8      8      8
8      8      8
8      8
8

```

38. (a)- Write a Program in C++ to show the output as shown below

```

          *
        *      *
      *      *      *
    *      *      *      *
  *      *      *      *      *

```

(b)- Write a Program in C++ to show the output as shown below

```
 *      *
  *    *
   *  *
    *
   *  *
  *    *
 *      *
```

(c)- Write a Program in C++ to show the output as shown below

```
      *
     * *
    *   *
   *     *
  *       *
 *         *
 *         *
 *         *
 *         *
```

(d)- Write a Program in C++ to show the output as shown below

```
-----
1*  1  2  3  4  5  6
2*  2  4  6  8 10 12
3*  3  6  9 12 15 18
4*  4  8 12 16 20 24
5*  5 10 15 20 25 30
6*  6 12 18 24 30 36
```

(e)- Write a Program in C++ to show the output as shown below

```
*****
*0*0*0*0*0*
*****
*0*0*0*0*0*
*****
```

(f)- Write a Program in C++ to show the output as shown below

```
      *
    * * *
  * * * * *
    * * *
      *
```

(g)- Write a Program in C++ to show the output as shown below

```
  1   2   3   4
  5   6   7   8
  9  10  11  12
```

(h)- Write a Program in C++ to show the output as shown below

```
          1
        3  1
      5  3  1
    7  5  3  1
  9  7  5  3  1
```

39. Write a Program in C++ to find the sum of the following series, ask the user to provide the Upper Limit

- i. $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + \dots$
- ii. $(1*1) + (2*2) + (3*3) + (4*4) + (5*5) + \dots + (n*n)$
- iii. $(1) + (1+2) + (1+2+3) + (1+2+3+4) + \dots + (1+2+3+4+\dots+n)$
- iv. $1^2 + 2^2 + \dots + n^2$

v. $1/1! + 1/2! + 1/3! + 1/4! + \dots + 1/n!$

vi. $1 + 1/2 + 1/3 + 1/4 + 1/5 + \dots + 1/n$

vii. $1 + 1/2^2 + 1/3^3 + \dots + 1/n^n$

viii. $x + x^2/2 + x^3/3 + \dots + x^n/n$

ix. $1 + x + x^2 + \dots + x^n$

x. $1 + x + x^2 + \dots + x^n$

39. Write C++ code to produce the output as shown below:

Results:

x value	y value	Expressions	Results
10	5	$x=y+3$	$x=8$
10	5	$x=y-2$	$x=3$
10	5	$x=y*5$	$x=25$
10	5	$x=x/y$	$x=2$
10	5	$x=x\%y$	$x=0$

40. Write C++ code to produce the output as shown below:

x value	y value	expressions	results
10	5	$x+=y$	$x=15$
10	5	$x-=y-2$	$x=7$
10	5	$x*=y*5$	$x=250$
10	5	$x/=x/y$	$x=5$
10	5	$x\%=y$	$x=0$

41. Write a C++ program to prompt the user to input her/his age and print it on the screen, as shown below.

Your age is 20 years old

42. Write a C++ program to prompt the user to input 3 integer values and print these values in forward and reversed order, as shown below.

Please enter your 3 numbers: 12 45 78

Your

numbers

forward: 12

45 78

Your

numbers

reversed: 78

45 12

43. Write C++ code to produce the output as shown below:

Contents of x	Expression	Value of	Contents of x
5	x++	5	6
5	x--	5	4
5	++x	6	6
5	--x	4	4

44. Write a program to prompt the user to input the integral value of a and print out the result as shown below:

Result:

The value of a is: 10

.....

The value of ++a is: 11

Now the value of a is: 11

The value of a++ is: 11
Now the value of a is: 12

The value of --a is:11
Now the value of a is:11

45. Write C code to generate the results as shown below:

```
Results:
=====Quizzes=====
Enter the score of the first quiz: 90
Enter the score of the second quiz: 75
Enter the score of the third quiz: 91
=====Midterm=====
    === Enter the score of the
    mid-term: 80
=====Final=====
Enter the score of the final: 89
```

```
Quiz Total:  256
Mid-term  :   80
Final    :   89
```

```
.....
Total: 425
```

46. Write a C code that prompts the user to input three integer values and find the greatest value of the three values.

Example:

```
Enter 3 integer vales separated by space: 10 15 20
The greatest value is: 20
```

47. Write a program that determines a student's grade. The program will read three scores and determine the grade based on the following rules:

- if the average score =90% =>grade=A
- if the average score >= 70% and <90%

=> grade=B -if the average score>=50%
and <70% =>grade=C -if the average
score<50% =>grade=F

48. Write C code to compute the real roots of the equation: $ax^2+bx+c=0$.
The program will prompt the user to input the values of a, b, and c. It
then computes the real roots of the equation based on the following
rules:

-if a and b are zero=>
no solution -if a is
zero=>one root (-c/b)
-if b^2-4ac is
negative=>no roots
-Otherwise=> two
roots

The roots can be computed using the
following formula: $x1=-b+(b^2-4ac)^{1/2}/2a$
 $x2=-b-(b^2-4ac)^{1/2}/2a$

49. Write a C++ program that will print the following pattern:

```
1*****  
12*****  
123****  
1234***  
12345**  
123456*  
1234567
```

50. Write a C program that will ask the user to input n positive numbers.
The program will terminate if one of those number is not positive.

51. output of

```
for(int i=9;i<=10;i++) for(int  
    j=0;j<2;j++);  
    cout<<"Test";
```

```
52. output of int
sum=0;
    for(int i=9;i<=10;i++) for(int
        j=0;j<2;j++)
            sum+i;
                cout<<sum;
```

```
53. output of int
sum=0;
    for(int i=9;i<=10;i++) for(int
        j=0;j<2;j++){
            for(int k=0;k<=2;k++) sum+i;
        }
                cout<<sum;
```

```
54. output of int
sum=0;
    for(int l=0;l<10;l+5) for(int
        i=9;i<=10;i++)
        for(int j=0;j<2;j++){
            for(int k=0;k<=2;k++)
                sum = sum + i -k;
        }
                cout<<sum;
```

```
55. output of int
sum=0;
    for(int l=0;l<10;l+5)
    {
        for(int i=9;i<=10;i++)
        for(int j=0;j<2;j++){
            for(int k=0;k<=2;k++)
                sum = sum + i -k;
        }
    }
                cout<<sum;
```

*****GOOD LUCK*****

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