

Basic concept of C++

1. Write C++ statement to

- a. Display Your Name, Age and Hobby in different lines. Separate header and value by one tab.

Output should be like:

Name Rohit

Age 10

Hobby Listening Music

- b. Declare a variable to store marks of a student. (value of marks if 9.5)
- c. Declare a variable that can take only positive value.
- d. Declare a location named **grade** with value 'A' that cannot be modified.
- e. Read an integer value from keyboard and then display Value is: value entered by user.
- f. Declare an integer and a float variable. Assign value 7.5 to float variable, then use type casting to assign this value to the integer variable.

2. Write complete C++ program to

- a. Display "Welcome " on your output screen.
- b. Display All your subjects in different lines.
- c. Display "Solar System" on the output screen , and after pressing enter clear "Solar System" from the output screen and display "name of all the Planets" one by one.

3. Write output for the following:

a. `#include<iostream.h>`
 `void main()`
 `{ cout<<" Class \t Room"; }`

b. `#include<iostream.h>`
 `void main()`
 `{ cout<<" Hello \n";`
 `cout<<"India";`
 `}`

4. Find error in the given code. Correct the code and then underline each correction.

```
Include(iostream.h>
Void main
{ int a=10;
  cout>>"Enter value of a";
  cin>>a;
  cout<<"value is " a;
}
```

D.A.V. PUBLIC SCHOOL, UPPAL'S SOUTHEND, SECTOR 49, GURGAON
CLASS XI (COMPUTER SCIENCE)

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Operators and Expressions

1. Write resultant data type for the following C++ expression:
 - a. 'a' - 5
 - b. 5.5 * 6
 - c. 'b' - 3 * 4.5
 - d. 'a'+5 *6
2. Evaluate following expressions and show steps of evaluation if a=5, b=4, and c=3.
 - a. 3*4/2<6 && 8 +2==10
 - b. a-3*2 ||++b*3
 - c. b+c<a+b
 - d. a*b+c/3<b+4||!(a/2)+3
3. Write output for the following C++ statements if a=5 and b=6 and all statements are independent of each other:
 - a. cout<<(a<b);
 - b. cout<<++a;
 - c. cout>>a--;
 - d. a++; cout<<++a;
 - e. cout<<(a<b)? 'A':'B';
4. **Write C++ program to**
 - a. Convert given distance in meter to meter and centimeter, i.e if input distance is 238 centimeter, then the output should be 2m 38cm.
 - b. Find number of 500, 100, 50, 10, 5 and 1 note in given currency, assuming all the notes are there.

Flow of control(if)

5. Write output for the following if p=0,q=4 and r=3.
 - a. if(p) cout<<"it is false";
 - b. if(q) cout<<"it is true";
 - c. if(p>q)
cout<<"Start the game";
else
cout<<"Time out"
 - d. if(p<q)
if(p<r)
cout<<"Can Enter";
else
cout<<"Try next time";
 - e. if(!p)
cout<<"Better luck next tile";
else
cout<<"Weldone";
6. Suppose Rehan has given exam in three subjects Maths, English and Science. Write C++ program to
 - a. Find minimum marks out of Maths and English.
 - b. Find maximum of marks out of the three given subjects.
 - c. Display he is eligible for scholarship if marks in maths and science are above 90.
 - d. Display 50% fee concession if marks either in science or maths are above 90.

1. Write output for the following C++ fragments assuming all the header files are included in the code.

a.

```
int main ()
{
    int i, j;

    for(i=0; i<=5; i++) {

        for(j=0; j <= 5; j++) {
            cout << i << j <<"\t";
        }

        cout <<"\n";
    }
    return 0;
}
```

b.

```
int main ()
{
    int i, j;

    for(i=2; i<100; i++) {
        for(j=2; j <= (i/j); j++)
            if(!(i%j)) break; // if factor found, not prime
        if(j > (i/j)) cout << i << " is prime\n";
    }
    return 0;
}
```

2. Find error in the following C++ code. Write corrected code and underline all the corrections.

```
int main()
{
    int j,k;
    for(i=1, i<=5: i++)
    {
        For(j=5;j>i; j--);
        cout<<' ';
        for(k=1;k<2*i;k++)
            cout<<i;
        cout<<endl;
    }

    return 0;
}
```

3. Write C++ program for the following
 - a. To calculate the monthly telephone bills as per the following rule:
 Minimum Rs. 200 for upto 100 calls.
 Plus Rs. 0.60 per call for next 50 calls.
 Plus Rs. 0.50 per call for next 50 calls.
 Plus Rs. 0.40 per call for any call beyond 200 calls.
 - b. To find the roots of and quadratic equation of type ax^2+bx+c where a is not equal to zero.
 - c. to determine whether the entered character is a capital letter, a small case letter, a digit or a special symbol. The following table shows the range of ASCII values for various characters.

Characters	ASCII Values
A – Z	65 – 90
a – z	97 – 122
0 – 9	48 – 57
special symbols	0 - 47, 58 - 64, 91 - 96, 123 – 127

- d. Two numbers are entered through the keyboard. Write a program to find the value of one number raised to the power of another.
- e. Write a program to sum of digits of given integer number.
- f. Write a program to calculate HCF of Two given number.
- g. Write a program to enter the numbers till the user wants and at the end it should display the maximum and minimum number entered.
- h. Write a program to print out all Armstrong numbers between 1 and 500. If sum of cubes of each digit of the number is equal to the number itself, then the number is called an Armstrong number.
 For example, $153 = (1 * 1 * 1) + (5 * 5 * 5) + (3 * 3 * 3)$
- i. Compute the natural logarithm of 2, by adding up to n terms in the series $1 - 1/2 + 1/3 - 1/4 + 1/5 - \dots 1/n$ where n is a positive integer and input by user
- j. Write program to print following patterns.

i) *****

ii) *
 **

iii) *
 **

iv) *

v) 1
 222
 33333
 4444444
 555555555

vi) 1
 212
 32123
 4321234
 543212345