

HomeWork 3

Q.1 Which data type is most suitable for storing a number 144050013?

- a) signed short
- b) unsigned short
- c) long long
- d) int

Q.2 What is “short” in C++ programming(multiple option may correct)

- a. A basic data type
- b. Qualifier
- c. Identifier
- d. Keyword (Reserved for computer use)

Q.3 Correct if there are any syntax errors:

- a.

```
int i; float j;
char s='c';
j=i%s;
cout>>j;
```
- b.

```
char c='CS101';
```
- c.

```
unsigned integer int=5;
```
- d.

```
const float f1=4.6722e3
s double=89;
f1=s/f1;
cout<<"Value of i is : f1<<endl;
```

4.Q Which of the following are valid declarations?

- a. int a;
- b. unsigned short float b;
- c. short c;
- d. short unsigned d;
- e. long e;
- f. long float f;
- g. long double g;
- h. short char h;

5.Q Consider the following code snippet:

```
float a = 6.022E23 + 1 - 6.022E23;  
float b = 6.022E23 - 6.022E23 + 1 ;
```

What will a and b store?

Are the two values same?

Try this on your machine. What is the reason of anomaly?

6.Q Consider the following code snippet:

```
int radius;  
cin >> radius;  
double x = (22/7) * radius * radius;
```

Will the variable x store the correct area? Where is the bug? What changes should be made?

7.Q What is the value of the variable sum if it is defined as int sum = (2*5 – 9)/2 ?

- (A) -4 (B) 5.5 (C) 0.5 (D) 0

8.Q Which one of the following data types in C++ is/are more than 4 bytes?

- (A) short int (B) unsigned int (C) int (D) double

9.Q Identify the valid variable names from the following

- I) `intHeight`
- II) `boolIsTrue`
- III) `2values`
- IV) `intWidth?`
- V) `floatSquareRoot`
- VI) `double_Square_Root`

10.Q How many bits are required to store the number 8^{2015} ?

11.Q A compiler reads, analyses and translates code into either an object file or a list of _____ messages.

12.Q Why is the program giving wrong output?

(You can assume that this code is written inside `main_program`)

```
int a=5;
int b=10;
int sum=a+b;
cout<<"Enter two numbers to add: ";
cin>>a>>b;
cout<<"The sum is: "<<sum;
```

When executed the following output was obtained:

Enter two numbers to add: 4 9

The sum is: 15

13.Q What will be the output of the following program?

```
#include<simplecpp>
main_program{
```

```

    int max-val=100;
    int min-val=10;
    int avg-val;
    avg-val = max-val + min-val / 2;
    cout<<"avg-val";
}

```

(Run the program on your machine to check)

(A) 55 (B) 105 (C) 60 (D) None of these

14.Q Consider the following program to calculate geometric mean,

```

#include<simplecpp>
main_program{
    _____ a; _____ b; _____ c;
    cout << "enter value of a :";
    cin>>a;
    cout << "enter value of b :";
    cin>>b;
    c=sqrt(a*b);
    cout<<"geometric mean is: "<<c;
}

```

fill in the blank with appropriate data type.

15.Q How many basic data types C++ have:

- 2
- 4
- 3
- none.

16.Q Write a program that takes two natural numbers x and y as input and prints the sum of squares of all the natural numbers n, such that $x \leq n \leq y$. Remember your program should output 0 if $x > y$.

17.Q What are the values of 'a' and 'b' after the program execution.
(It will check your understanding on assignment operator)

```
#include<simplecpp>
main_program
{
    int a, b;
    a = 10;
    b = 4;
    a = a%b;
    b = a+b;
    cout << "a=";
    cout << a<<endl;
    cout << "b=";
    cout << b;
}
```

18.Q Write a program to reverse a 3 digit number.

19.Q Can we exchange the values of variables in cycle. If input is like a=5, b=10, c=15, and what we want is values will be shifted in cycle,i.e a=10,b=15,c=5. Can we do this without using fourth variable?

20.Q Write a program to print the fibonacci series upto n terms, taking n as input from the user.

Fibonacci series : The first two number of the fibonacci series is 0 and 1. The next number is found by adding up the two numbers before it.

0, 1, 1, 2, 3, 5, 8, 13, ...

21.Q Write a program to create and print a harmonic sequence, by taking first term, last term and no. of terms from the user.

Harmonic Series: The harmonic series is a divergent infinite series and mathematically represented as:

$$\sum_{n=1}^{\infty} 1/n$$

22.Q Write a program to find the sum of a geometric series upto n terms without using repeat.

23.Q Find Sum of Series [$1 - X^2/2! + X^4/4! - \dots$]

24.Q Write a program to find the n^{th} term of the given series:

$$t_n = ((t_{n-1})/n) + t_0^{n-1} \quad \text{where } t_0=2$$