

Homework 3- Solutions

1. Ans d)int

2. Ans. b and d

3. Ans.

- a. i needs to to initialized
cout << j;
- b. char can save only one character
- c. it is unsigned int, not integer
can't use int as a variable name, it is a reserved keyword
- d. semicolon missing
f1 is constant, value can't be changed
cout<<"Value is : "<< f1<<endl; // variable name out of double quotes

4. Ans

- a. valid
- b. not valid, because float can not used with unsigned or signed. Float negative numbers and positive number can be represented by 2's compliment.
- c. valid, if you are not mentioning the basic data type, then by default it is int.
- d. valid, you can write short and unsigned interchangeably.
- e. valid (same as c)
- f. Invalid, a float can not be long
- g. valid
- h. Invalid, for character you do not put specifiers or qualifiers like short or long.

5. Ans

the values stored are -

a = 0;

b = 1;

The reason is related to the precision with which floating point numbers can be stored.

6. Ans. No, 22/7 will result into 3 instead of desired 3.14...

So change the statement to

```
double x = 22.0/7 * radius * radius;
```

7. Ans. (D) 0, The expression evaluates to 0.5 but as sum is an int type of variable, it stores only the integer part of 0.5, i.e. 0

8. Ans (D) double

9. Ans I) intHeight: Valid

II) boolIsTrue: Valid

III) 2values: Invalid, can't start with a number

IV) intWidth? : Invalid, no special characters except underscore("_")

V) floatSquareRoot : Valid

VI) double_Square_Root : Valid

10. Ans. The number of bits required to represent an integer n is $\lfloor \log_2 n \rfloor + 1$, so 8^{2015} will require $\lfloor 2015 \log_2 8 \rfloor + 1$ bits

11. Ans. error

12. Ans Variables doesn't work like equations in mathematics. If a variable is defined using two different variables (a and b in this example), the value of the variable will not change when either of the two variables change. Once you assign a value to a variable, it's that value until you reassign the values.

Corrected Code:

```
int a=5;
```

```
int b=10;
```

```
cout<<"Enter two numbers to add: ";
```

```
cin>>a>>b;
```

```
int sum=a+b;
```

```
cout<<"The sum is: "<<sum;
```

13. Ans (D) None of these ,It won't give any output(will show error) as while naming a variable, '-' cannot be used

14. Ans use float or double to avoid loss of precision

15. Ans d) none. (bool, char , int , float, double, void, wchar_t)

16. Ans

```
#include<simplecpp>
main_program{
    int x, y;
    cin >> x >> y;
    int sum = 0;
    int i = x;
    repeat(y-x+1){
        sum = sum + i*i;
        i = i + 1;
    }
    cout << sum << endl;
}
```

17. Ans

a=2, b=6

18. Ans

```
#include<simplecpp>
main_program
{
    int i,remainder,rev=0;
    cout<<"Enter a 3 digit no.: ";
    cin>>i;
    repeat(3)
    {
        remainder=i%10;
        rev=rev*10+remainder;
        i=i/10;
    }
    cout<<rev;
```

```
}
```

19. Ans.

You know how to exchange values of two variables without using third variables.(in homework 2), Just do that wisely.

```
#include<simplecpp>
main_program
{
    int a, b,c;
    cout<<"enter the values of a and b and c";
    cin>>a>>b>>c;
    a=a+b;      //these three statements are for exchange values between a and b.
    b=a-b;
    a=a-b;
    b=b+c;      //these three statements are for exchange values between b and c
    c=b-c;
    b=b-c;
    cout<<"a="<<a<<" b="<<b<<" c="<<c<<endl;
}
```

20.Ans.

```
#include<simplecpp>
main_program
{
    int n, a=0,b=1,c=0;
    cout << "Enter the number of terms of Fibonacci series you want" << endl;
    cin >> n;
    cout << "First " << n << " terms of Fibonacci series are :- " << endl;
    repeat(n)
    {
        cout<<a<<endl;
        c=a+b;
        a=b;
        b=c;
    }
}
```

21.Ans

```
#include<simplecpp>
main_program
{
    double first,last,term;
    int n;
    cin>>first;
    term=first;
    cout<<"Enter last term: ";
    cin>>last;
    double ap_first, ap_last, diff;

    cout<<"Enter first term: ";
    cout<<"Enter no. of terms: ";
    cin>>n;

    ap_first=1/first;
    ap_last=1/last;
    diff=(ap_last-ap_first)/(n-1);

    cout<<"Harmonic progression is: ";
    repeat(n)
    {
        cout<<term<<endl;
        term=1/((1/term)+diff);}
    }
}
```

22. Ans.

```
#include<simplecpp>
main_program
{
    float a,r;
    int n;
    float sum=0;
    cout<<"Enter the first number of the series : ";
    cin>>a;
    cout<<"Enter the common ratio of the series : ";
    cin>>r;
    cout<<"Enter the number of terms in the series : ";
    cin>>n;
    sum=(a*(1-pow(r,n)))/(1-r);
    cout<<"\nSum of the G.P. : "<<sum;
}
```

23. Ans.

```
#include<simplecpp>
main_program
{
    float x,sum,temp1,temp2, i=1, n;
    cout<<"enter the Value of x and (n) Number of terms to be sum\t :";
    cin>>x>>n;
    sum =1; temp1 = 1;
    repeat(n)
    {
        temp2 = (2*i)*(2*i-1);
        temp1 = -temp1*x*x/temp2;
        sum =sum+ temp1;
        i++;
    }
    cout<<"The sum of the terms = "<<sum;
```

```
}
```

24.Ans.

```
#include<simplecpp>
main_program{
    float t0=2, term1=2,term2=1,tn=2;
    int n,i=1;
    cout<<"enter no. of terms: ";
    cin>>n;

    repeat(n-1) //n-th term is t.n-1
    {
        tn=term1+term2;
        i++;
        term1=tn/i;
        term2=term2*t0;
    }

    cout<<"n-th term is: "<<tn;
}
```

