Homework 5- Solutions

1.Ans

i) d. iteration
ii) c. repeat until
iii) a. for(; ;)
iv) a. and b.

2.Ans) 10

3.Ans) continue;

4.Ans)

```
x = 1;
while(x<=20)
{
        cout<<x;
        x = x + 2;
}
```

5.Ans) 14

6.Ans) 6, A for loop need not have a body

7. Ans) (D) Every time the loop is entered, the value of m decreases by 1 and on finishing the loop the value of i increases by 1. Since the loop condition is (i <m), it can be seen that the loop condition will be checked 6 times (5 times when the loop is entered + 1 times when the loop condition turns false and the loop exits)

8. Ans) C, 1st case: i from zero to n-1(successful comparisons)+1(unsuccessful) when i becomes n. 2nd case: i from 1 to n-1(succ. comp)+1(unsucc.)

9.Ans) b, in each *iteration* i is incremented by one and that is added to j, but we have a *continue* statement above the a++ means a++ will never be execute. Now we have to check the j's value either it will become 20 or i=11.

10.Ans) d, There is a semicolon at the end of *for loop,* it will terminate there only and comes out when the condition of for loop will become false(when i=n) then the below two statements will execute only once. (DO NOT PUT SEMICOLON AFTER THE LOOP)

11.Ans) The code finds the sum of all the numbers entered.
It terminates when the user enters 0 as an input

12.Ans)

a. Function is declared with return type void, can't return (x*y)

b. data-type of parameter y is missing

c. type of parameter can't be void

13.Ans) 4 4

14.Ans)

```
#include<simplecpp>
main_program
{
    int i,j,sum;
    cout << "These are the perfect numbers between 1 to 1000:" << endl;
    for (i = 1; i <= 1000; i++)
    {
        sum = 0;
        for (j = 1; j < i; j++)
        {
            if ((i%j)==0)
            {
                sum += j;
            }
        }
```

```
                if (sum == i)
                {
                        cout << i << endl;
                }
        }
}
```

15.Ans)

```
#include<simplecpp>
main_program
{
        int n,sum=0,rev=0;
        cout<<"Enter a positive number: ";
         cin>>n;

        if(n<0) cout<<"wrong input";
        else
         {
                while(n>0)
                {
                        sum=sum+(n%10);
                        rev=(rev*10)+(n%10);
                        n=n/10;
                }
        }
        cout<<"Sum is: "<<sum<<endl;
        cout<<"Reverse is: "<<rev<<endl;
}
```

16.Ans)

```
#include<simplecpp>
main_program
{
	int number;
	cin>> number;
	int sum_factors = 0;
	for( int i = 1; i < number; i++)
	{
		if(number % i == 0)
		{
			sum = sum + i;
		}
	}
}
```

17. Ans)

```
#include<simplecpp>
main_program
{
	int sum;
	for ( int i = 100 ; i < 1000 ; i++ )
	{
		sum = 0;
		int temp = i;
		while( temp != 0)
		{
			sum = sum +(temp % 10)*(temp % 10)*(temp % 10);
			temp = temp / 10;
		}
		if( sum == i ) cout << i;
	}
}
```

18. Ans) (C) We know that only finite integers can be represented using int type. Suppose that T is the greatest integer which can be represented using int . Therefore T+1 will wrap around giving the least integer representable using int.
Option (A) and (D) are incorrect because they are infinite loops.

Option (B) gives the least integer value of int data type in the variable T which is not the required motive. Therefore it is incorrect.

Option (C) : The loop always compares i with i+1 and if i+1 > i , i is incremented by 1 because a greater number is found. This gives the correct answer.

19. Ans) (E)
Option A : The loop starts by doubling n and assigning m = (m-1)/2 . This is incorrect because it avoids the start step and also goes to incorrect step for even m .
Option B : The loop starts by doubling n. This is incorrect because it gives the wrong start step.

Option C : The loop starts by doubling n and assigning m = (m-1)/2 . This is incorrect because it avoids the start step and also goes to incorrect step for even m .

Option D : The loop gives the correct start step and advances correctly. But it skips the case when m=1. Thus the final answer given by this loop is incorrect.

NONE OF THE OPTIONS ARE CORRECT. So Option E

20.Ans)

0
0
1
2
3
4

21.Ans)

0
0
0
0
0
0

22.Ans)

```
bool isPrime(int x){
	if(x<2) return false;
	for(int i=2; i<=sqrt(x); i++){
		if(x%i==0) return false;
	}
	return true;
}
```

23.Ans)

```
void printPrimes(int x, int y){
	for(int i=x; i<=y; i++){
		if(isPrime(i)) cout << i << endl;
	}
}
```