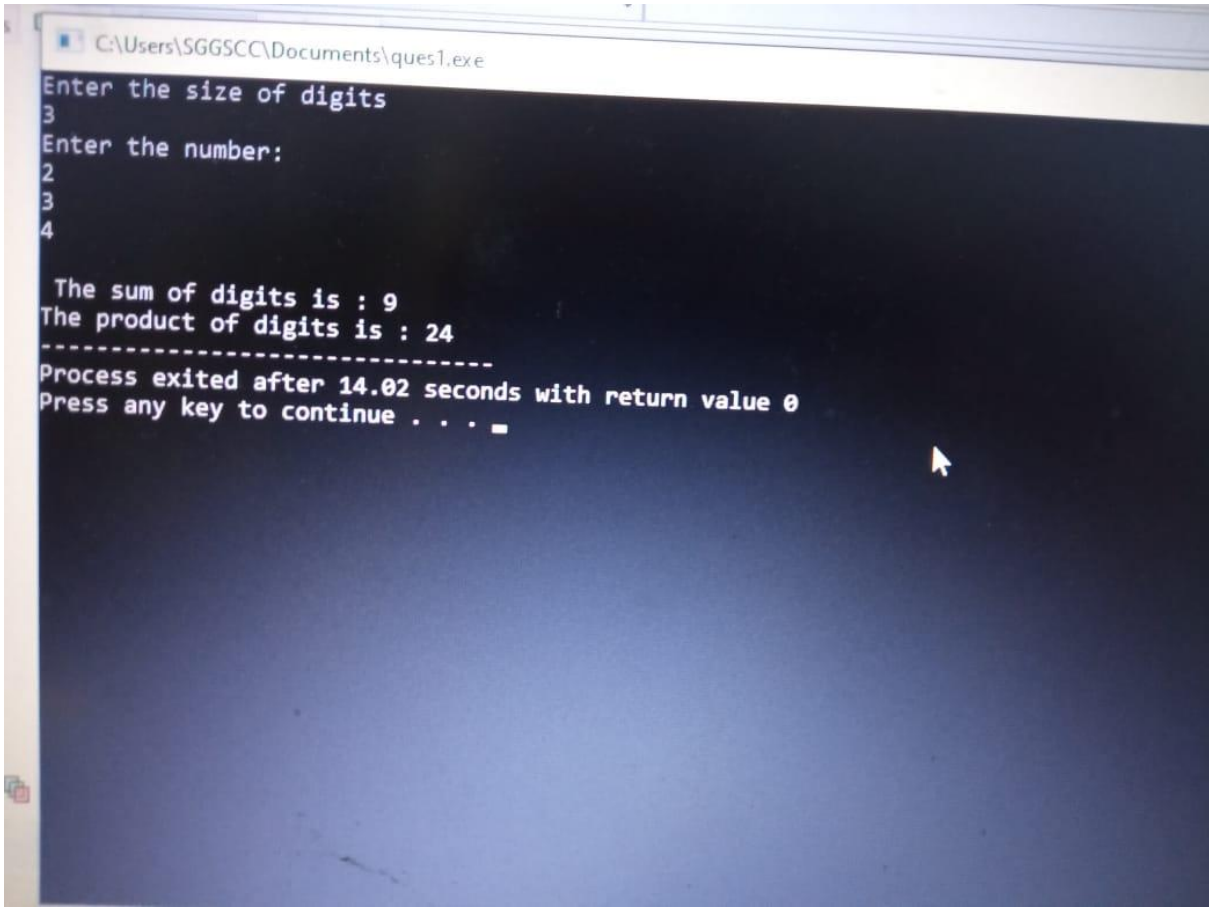
QUESTION 1:

```
#include<iostream>
using namespace std;
void calc_sum(int arr[],int &n)
{
        int sum=0,i;
        for(i=0;i<n;i++)
           sum=sum+arr[i];

        cout<<"\n The sum of digits is : "<<sum;
        return;
}
void calc_product(int arr[],int &n)
{
        int product=1,i;
        for(i=0;i<n;i++)
            product=product*arr[i];

        cout<<"\nThe product of digits is : "<<product;

        return;
}
int main()
```

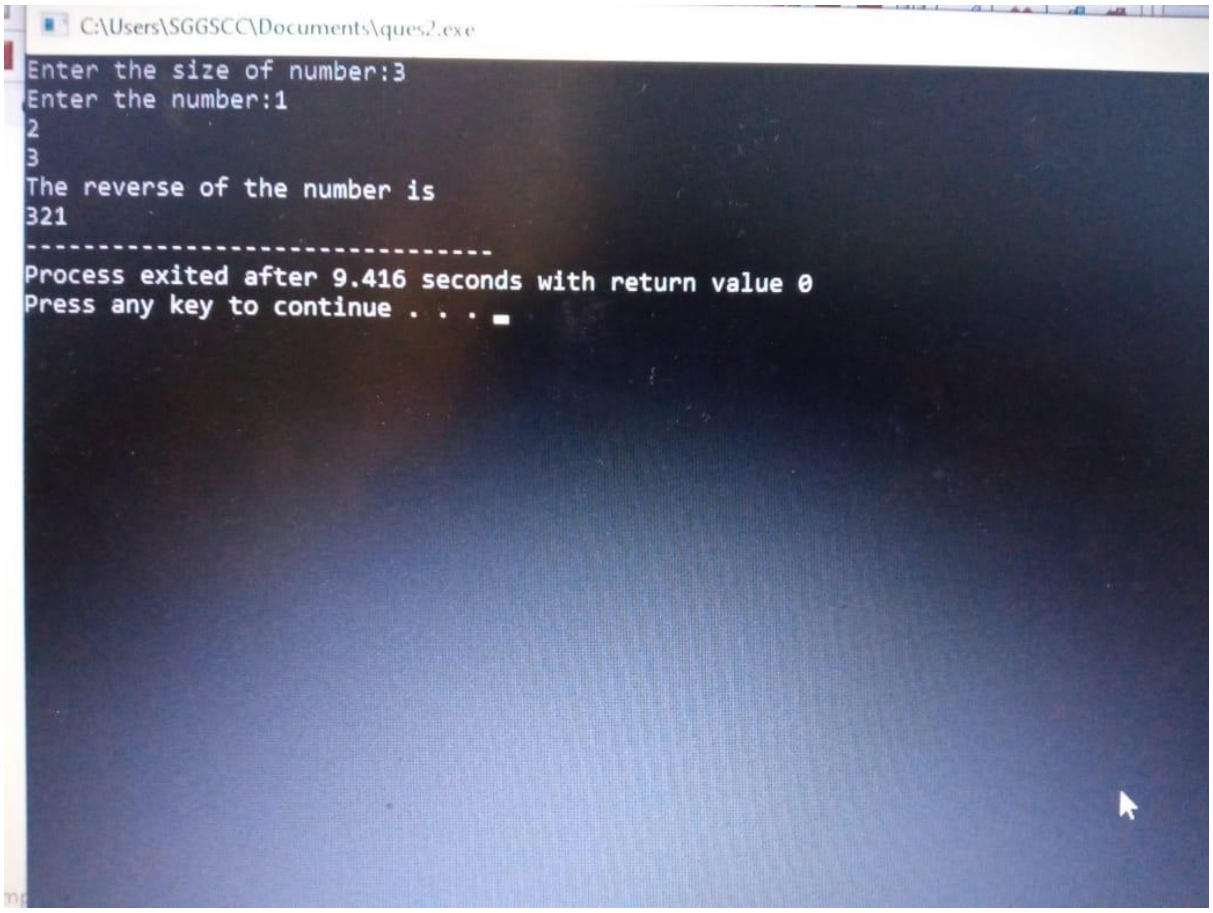
```
{
        int arr[10],i,n;
        cout<<"Enter the size of digits"<<endl;
        cin>>n;
           cout<<"Enter the number:"<<endl;
        for(i=0;i<n;i++)
            cin>>arr[i];

        calc_sum(arr,n);
        calc_product(arr,n);

        return 0;
}
```



QUESTION 2 :

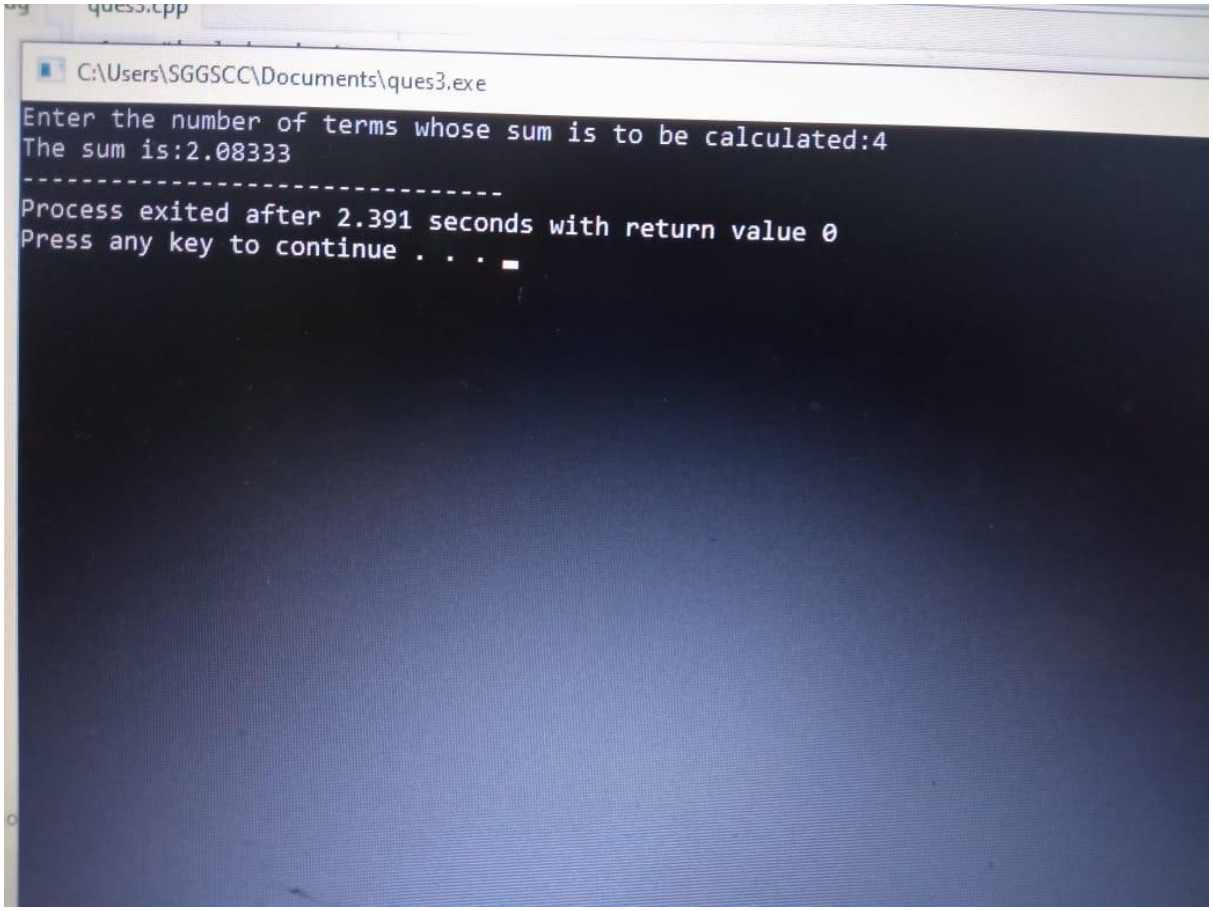
```
#include<iostream>

using namespace std;


void reverse(int arr[],int &n,int &i)

{

   cout<<"The reverse of the number is"<<endl;

      for(i=n-1;i>=0;i--)

         cout<<arr[i];

   return;

}
```

```
int main()
{
   int i,n,arr[10];
   cout<<"Enter the size of number:";
   cin>>n;
   cout<<"Enter the number:";
   for(i=0;i<n;i++)
     cin>>arr[i];
   reverse(arr,n,i);
   return 0;
}
```



QUESTION 3:

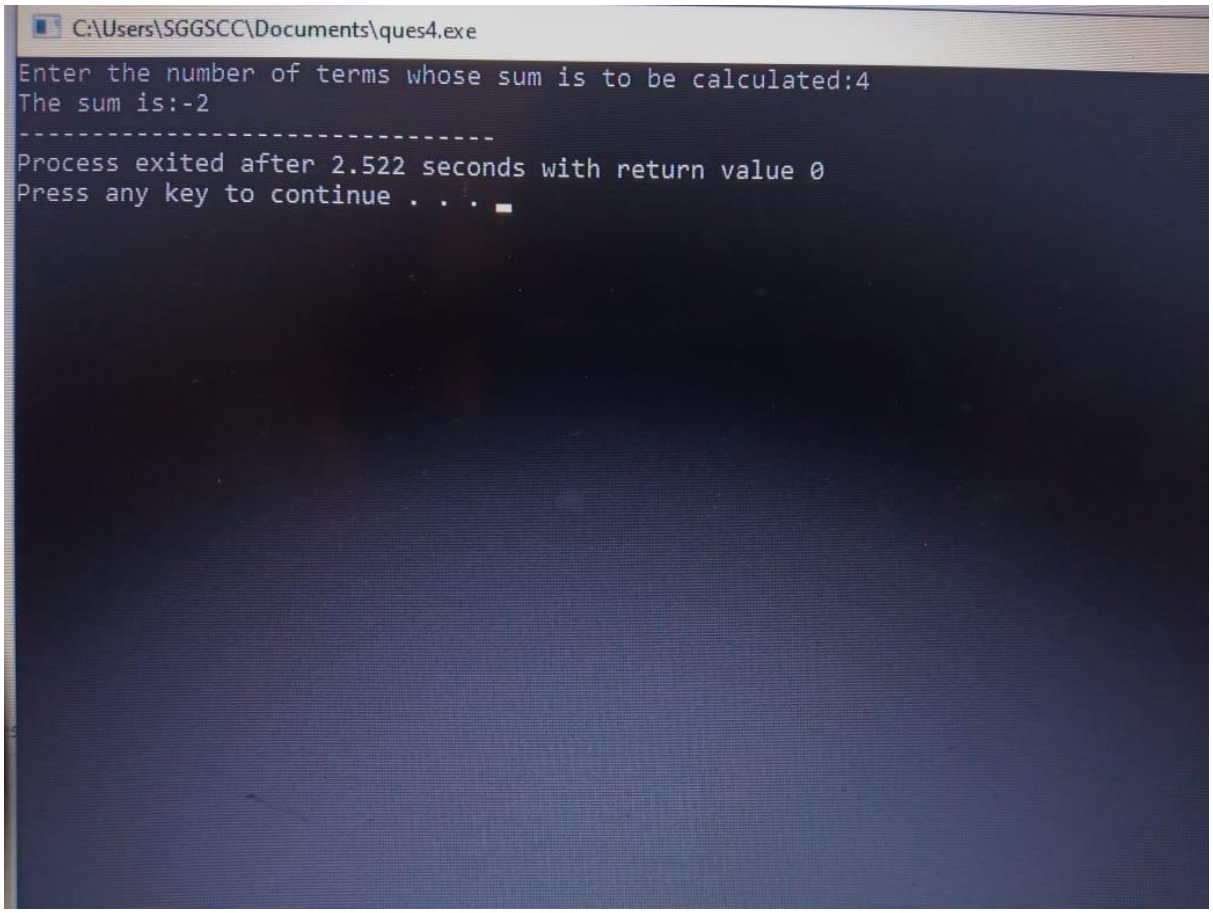
```
#include <iostream>


using namespace std;


float sum(int n)
{
   int i;
   float sum;
   for(i=1;i<=n;i++)
     sum=sum+(1.0/i);
   cout<<"The sum is:"<<sum;
   return 0;
}
int main()
{
   int n;
   cout<<"Enter the number of terms whose sum is to be calculated:";
   cin>>n;
   sum(n);
   return 0;
}
```



QUESTION 4:

```
#include<iostream>

using namespace std;

int sum(int &n)

{

   if(n%2==1)

     return(n+1)/2;

   else

     return-n/2;

}

int main()
```

```
{
   int n;
   cout<<"Enter the number of terms whose sum is to be calculated:";
   cin>>n;
   cout<<"The sum is:"<<sum(n);
   return 0;

}
```

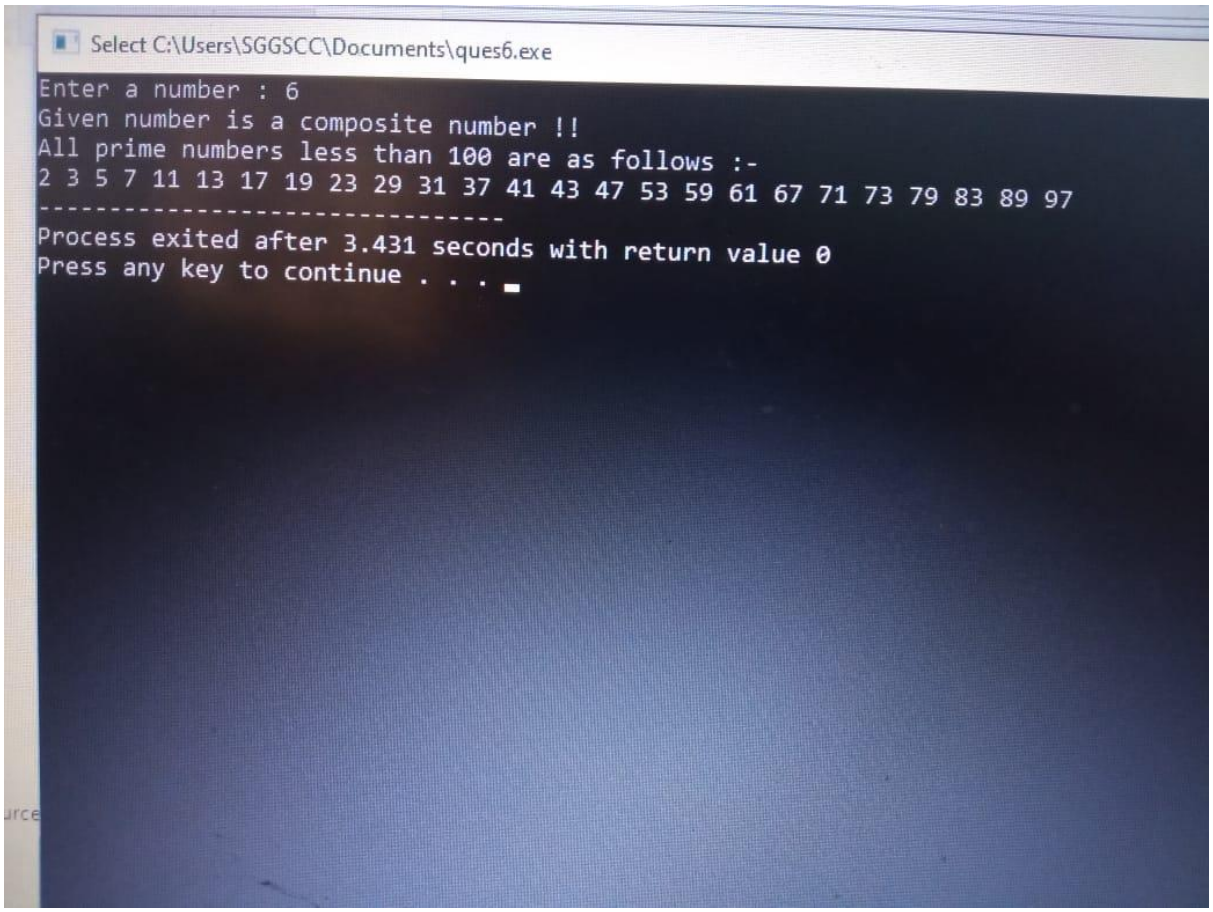


QUESTION 6:

```
#include<iostream>
```

```
using namespace std;

int is_prime (int n)
{
	int flag=0;
	for(int i=2 ; i<=n/2 ; i++)
		if(n%i==0)
		{
			flag=1;
			break;
		}
	return flag;
}

void prime ()
{
	int n;
	cout<<"Enter a number : ";
	cin>>n;
	if(is_prime(n)==1)
		cout<<"Given number is a composite number !!";
	if(is_prime(n)==0)
		cout<<"Given number is a prime number !!";
```

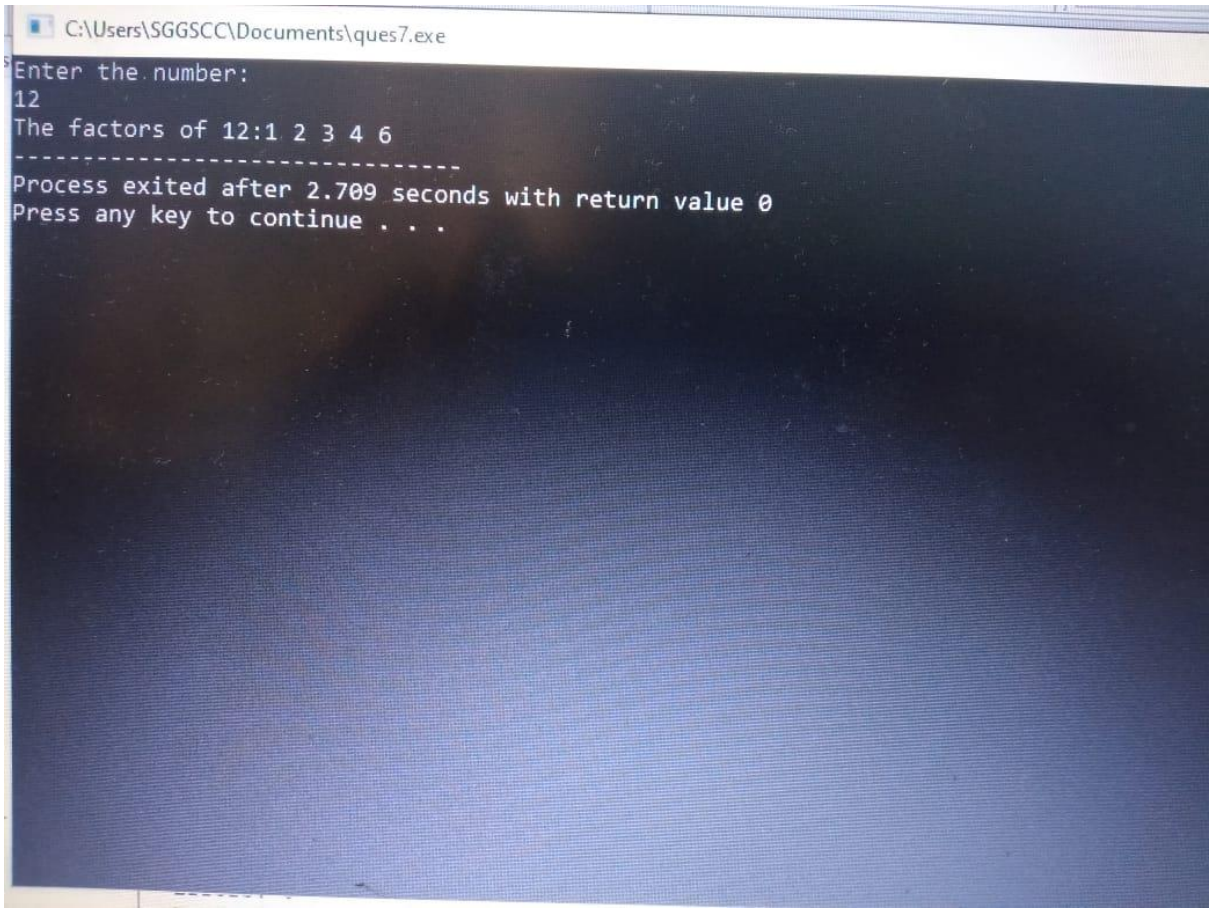
```
        cout<<endl;
        cout<<"All prime numbers less than 100 are as follows :-"<<endl;
        for(n=2 ; n<=100 ; n++)
                if(is_prime(n)==0)
                        cout<<n<<" ";
}

int main ()
{
        prime ();
        return 0;
}
```



QUESTION 7:

```
#include<iostream>
using namespace std;

void factors(int n)
{
        int i;
        cout<<"The factors of "<<n<<":";
        for(i=1;i<=(n/2);i++)
        {
            if((n%i)==0)
              cout<<i<<" ";
   }
   return;
}
int main()
{
        int n;
        cout<<"Enter the number:"<<endl;
        cin>>n;
        factors(n);
        return 0;
```

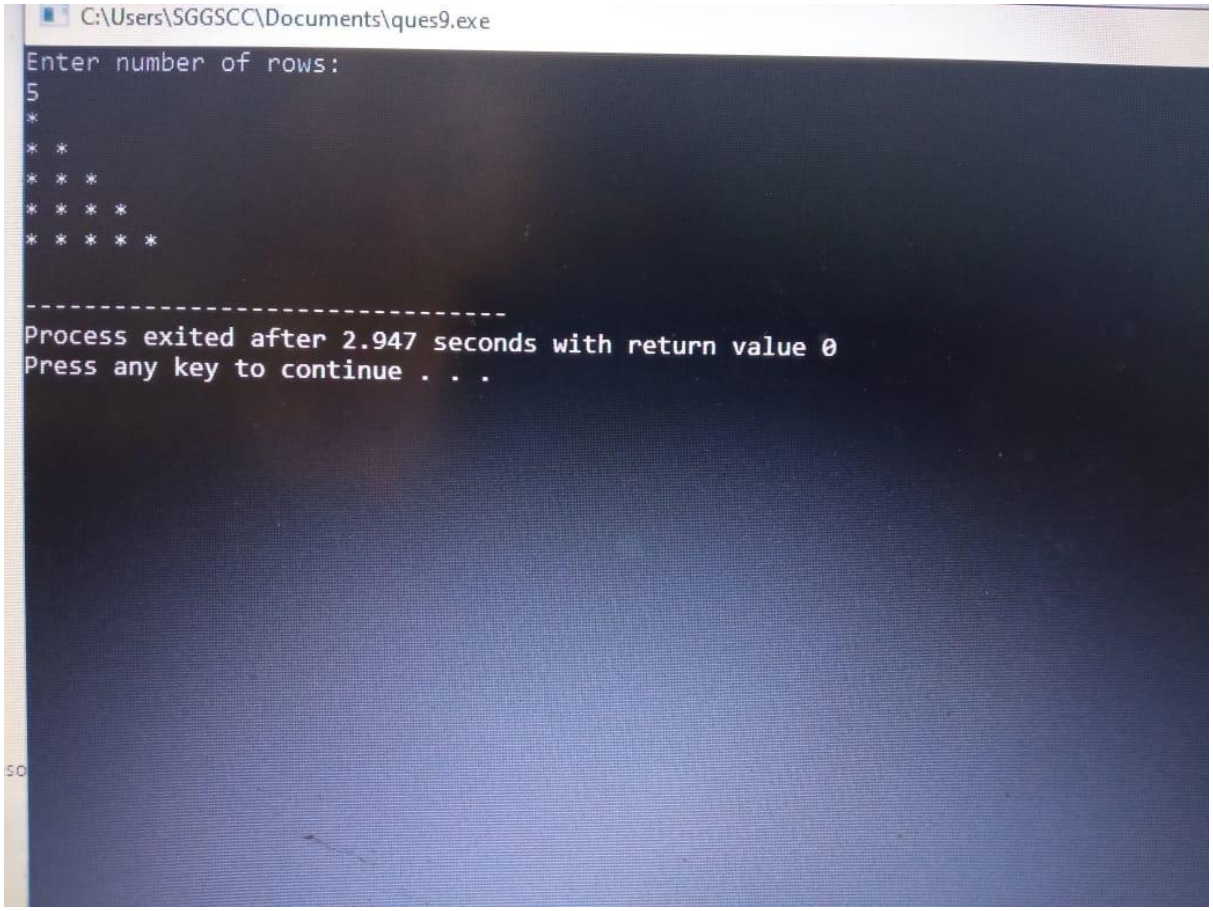
}



QUESTION 9:

```
#include<iostream>

using namespace std;

void pattern(int rows)

{

   int i,j;

   for( i=1;i<=rows;i++)

   {

      for(int j=1;j<=i;j++)
```

```
        cout<<"*"<<" ";
      cout<<endl;
   }
   return;
}
int main()
{
   int n,rows;
   cout<<"Enter number of rows:"<<endl;
   cin>>rows;
   pattern(rows);
   return 0;
}
```



QUESTION 10:

```
#include<iostream>

#include<cstdlib>

using namespace std;

void menu()

{

   int A[50],n,choice,i,j;

   cout<<"Enter the size of array : "<<endl;

   cin>>n;

   cout<<"\nEnter the elements of array : "<<endl;

   for (i=0;i<n;i++)
```

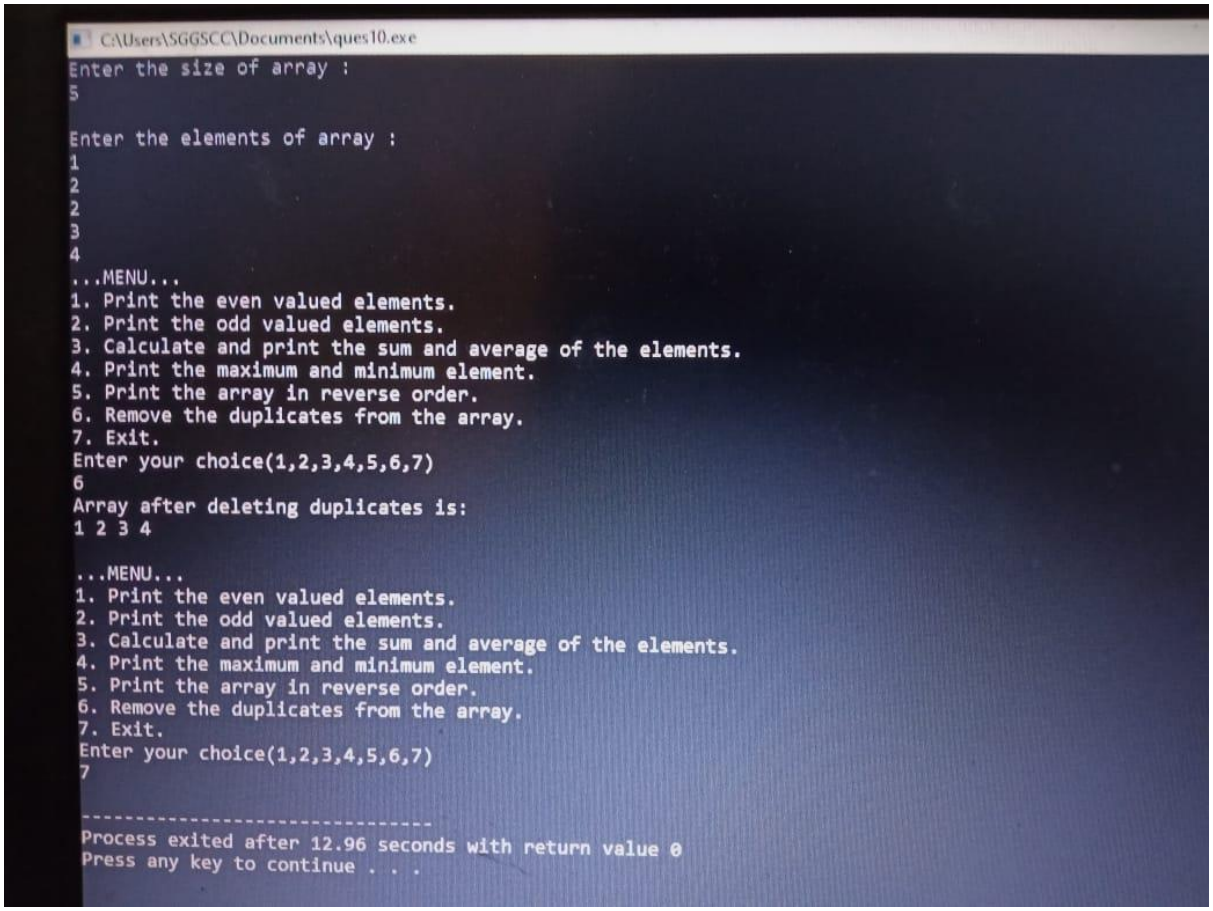
```
   cin>>A[i];


do
{
   cout<<"...MENU...\n"
      <<"1. Print the even valued elements.\n"
      <<"2. Print the odd valued elements.\n"
      <<"3. Calculate and print the sum and average of the elements.\n"
      <<"4. Print the maximum and minimum element.\n"
      <<"5. Print the array in reverse order.\n"
      <<"6. Remove the duplicates from the array.\n"
      <<"7. Exit.\n";
   cout<<"Enter your choice(1,2,3,4,5,6,7)\n";
   cin>>choice;


   switch(choice)
   {
      case 1: {cout<<"The even valued elements: ";
                              for(i=0;i<n;i++)
            {
               if(A[i]%2==0)
                 cout<<A[i]<<" ";
            }
```

```
        cout<<endl<<endl;
        break;
    }
case 2:{
                    cout<<"The odd valued elements: ";
                    for(i=0;i<n;i++)
        {
           if(A[i]%2!=0)
             cout<<A[i]<<" ";
        }
        cout<<endl<<endl;
        break;

    }
case 3: {

                    int sum=0;
        float avg=0.0;
        for(i=0;i<n;i++)
        {
           sum=sum+A[i];
        }
        cout<<"The sum of elements is: "<<sum<<endl;
```

```
        avg=float(sum)/n;
        cout<<"The average of elements is: "<<avg<<endl<<endl;
        break;
    }
case 4: {
                    i=0;
        int max=A[0],min=A[0];
        for(j=0;j<n;j++)
        {
           if(A[i]<A[j] && max<A[j])
             max=A[j];
        }
        cout<<"The maximum element of the array is: "<<max<<endl;

        for(j=0;j<n;j++)
        {
           if(A[j]<A[i] && A[j]<min)
             min=A[j];
        }
        cout<<"The minimum element of the array is: "<<min<<endl<<endl;
        break;
    }
case 5: {
```

```
                    cout<<"The array in reversed order: ";
        for(i=n-1;i>=0;i--)
        cout<<A[i]<<" ";
        cout<<endl<<endl;
        break;

    }
case 6: {

                    int k;
        for(i=0;i<n;i++)
          for(j=i+1;j<n; )
          {
             if(A[i]==A[j])
             {
                for(k=j;k<n-1;k++)
                   A[k]=A[k+1];
                   n--;
             }
             else
               j++;
          }
```

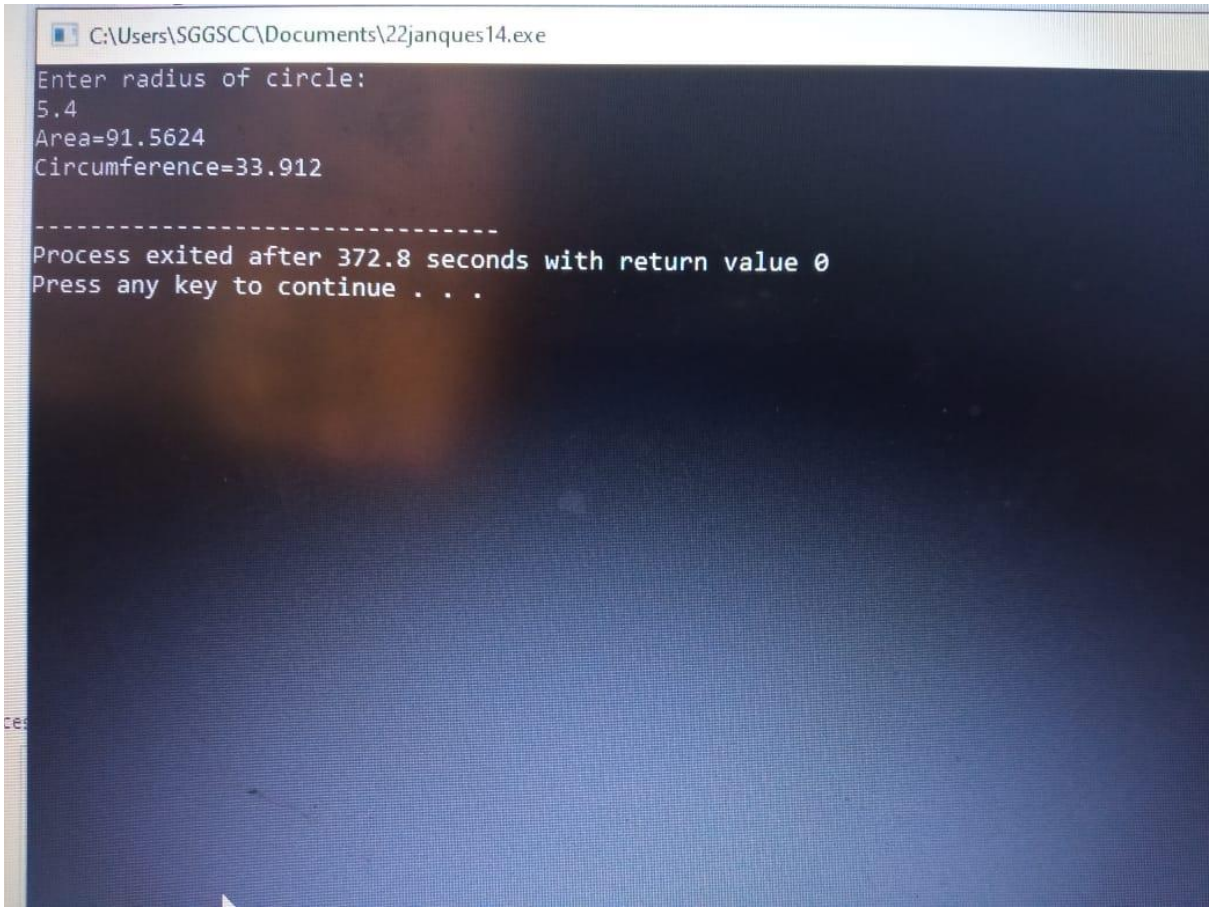
```
                cout<<"Array after deleting duplicates is: "<<endl;
                for(i=0;i<n;i++)
                  cout<<A[i]<<" ";
                cout<<endl<<endl;
                break;
              }
          case 7: exit(0);
          default: "Wrong choice! Enter again.";
       }
   }
   while(choice>=1 && choice!=7);
   return;
}
int main()
{
   menu();
   return 0;
}
```



QUESTION 14:

```
#include<iostream>

using namespace std;


double area(double r)

{

   double area=3.14*r*r;

   return area;

}


double circumference(double r)
```

```
{
    double circumference=2*3.14*r;
    return circumference;
}
int main()
{
    double r;
    cout<<"Enter radius of circle: "<<endl;
    cin>>r;

    cout<<"Area="<<area(r)<<endl;
    cout<<"Circumference="<<circumference(r)<<endl;
    return 0;
}
```

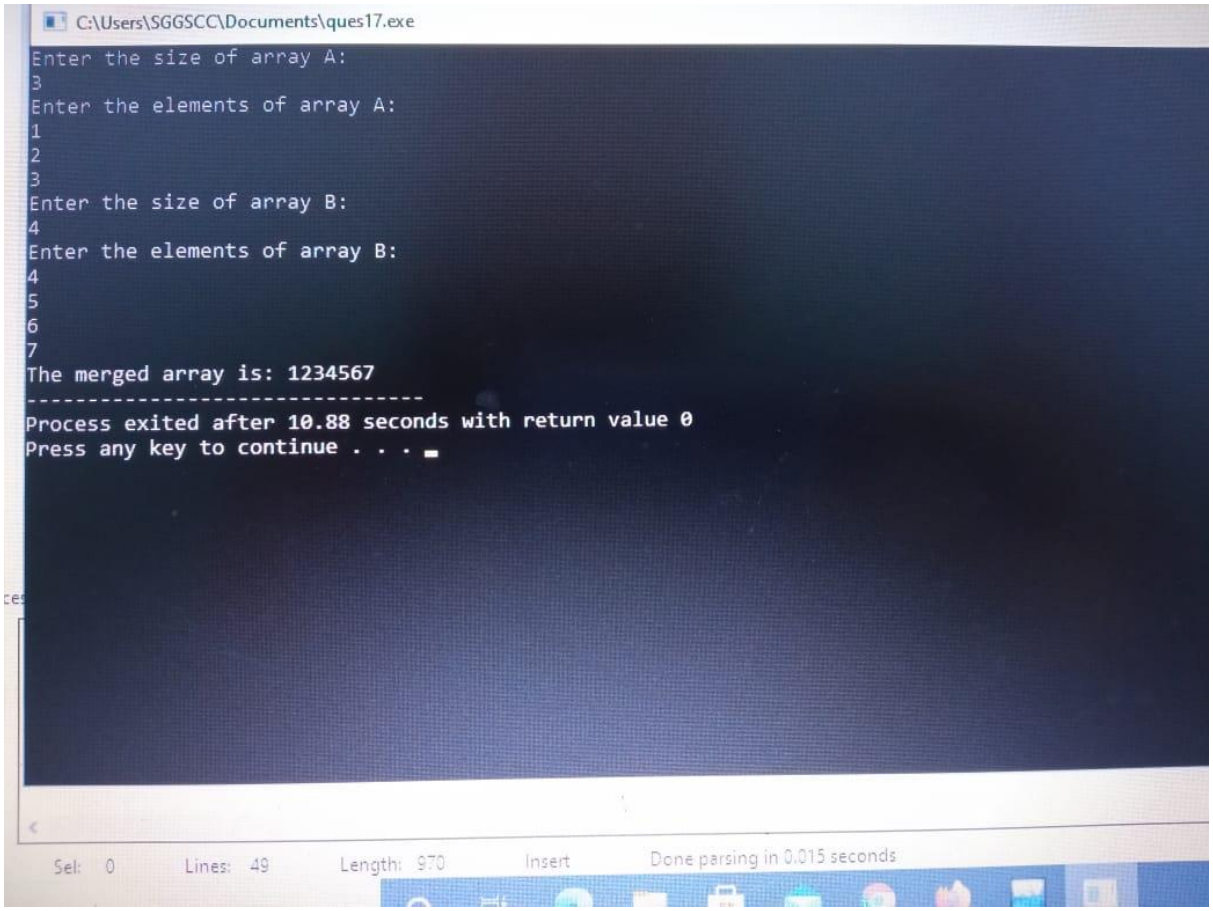


QUESTION 17:

```
#include<iostream>

using namespace std;

void merge(int A[],int B[],int n,int m,int mn,int i,int j)

{

   int C[50],k;

   for(i=0,j=0,k=0;i<m && j<n; )

   {

      if(A[i]<=B[j])

        C[k++]=A[i++];

      else
```

```
        C[k++]=B[j++];
    }
    if(i<m)
    {
        while(i<m)
            C[k++]=A[i++];
     }
    else
    {
          while(j<n)
              C[k++]=B[j++];
    }
    cout<<"The merged array is: ";
    for(k=0;k<mn;k++)
      cout<<C[k];

    return;
}
int main()
{
    int A[20],B[20],m,n,mn,i,j;
    cout<<"Enter the size of array A: "<<endl;
    cin>>m;
```

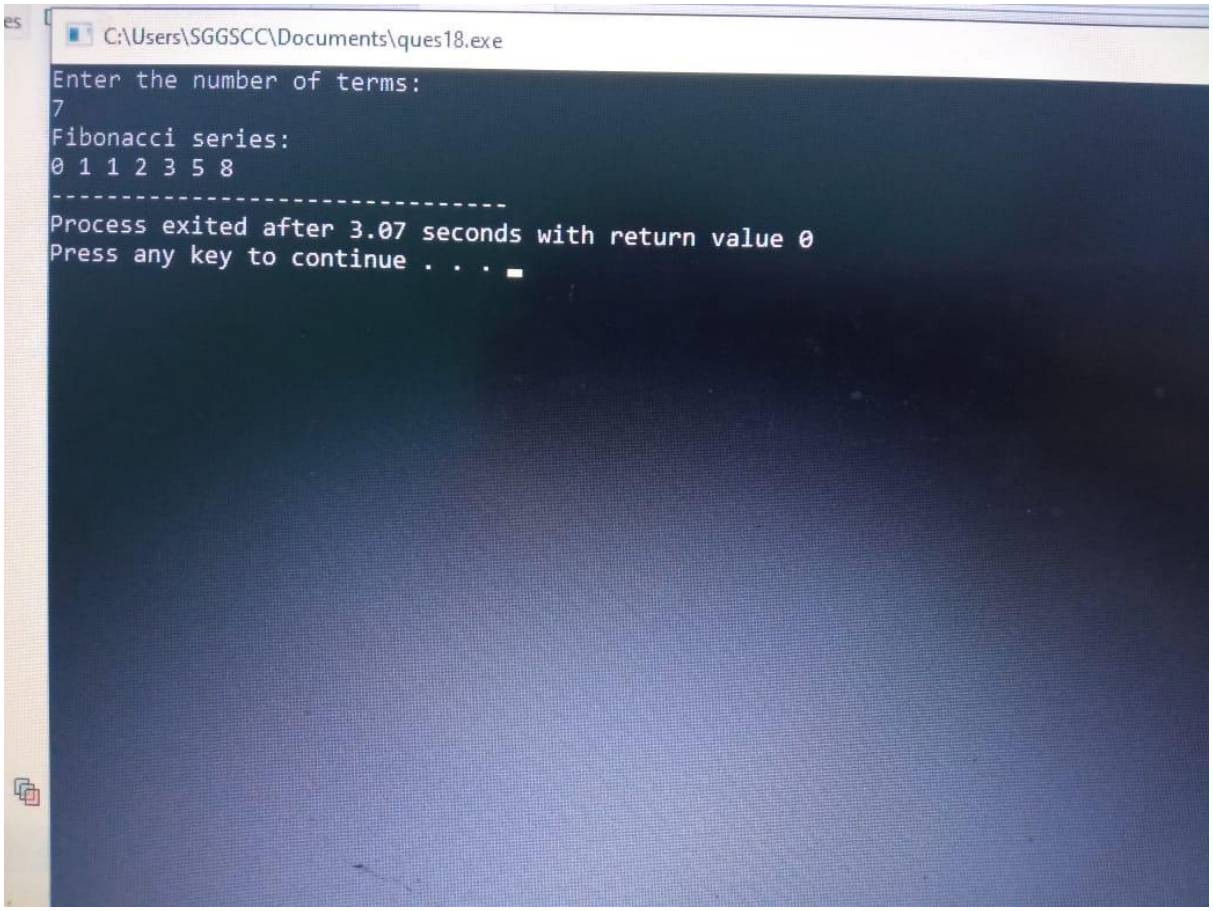
```
    cout<<"Enter the elements of array A: "<<endl;
    for(i=0;i<m;i++)
      cin>>A[i];

    cout<<"Enter the size of array B: "<<endl;
    cin>>n;
    cout<<"Enter the elements of array B: "<<endl;
    for(j=0;j<n;j++)
      cin>>B[j];

    mn=m+n;
    merge(A,B,n,m,mn,i,j);

    return 0;
}
```



QUESTION 18:

```
#include<iostream>

using namespace std;

void series(int n)

{

   int A=0,B=1,count=2,next=0;

   cout<<"Fibonacci series: "<<endl;

   cout<<A<<" "<<B<<" ";


   while(count<n)

   {
```

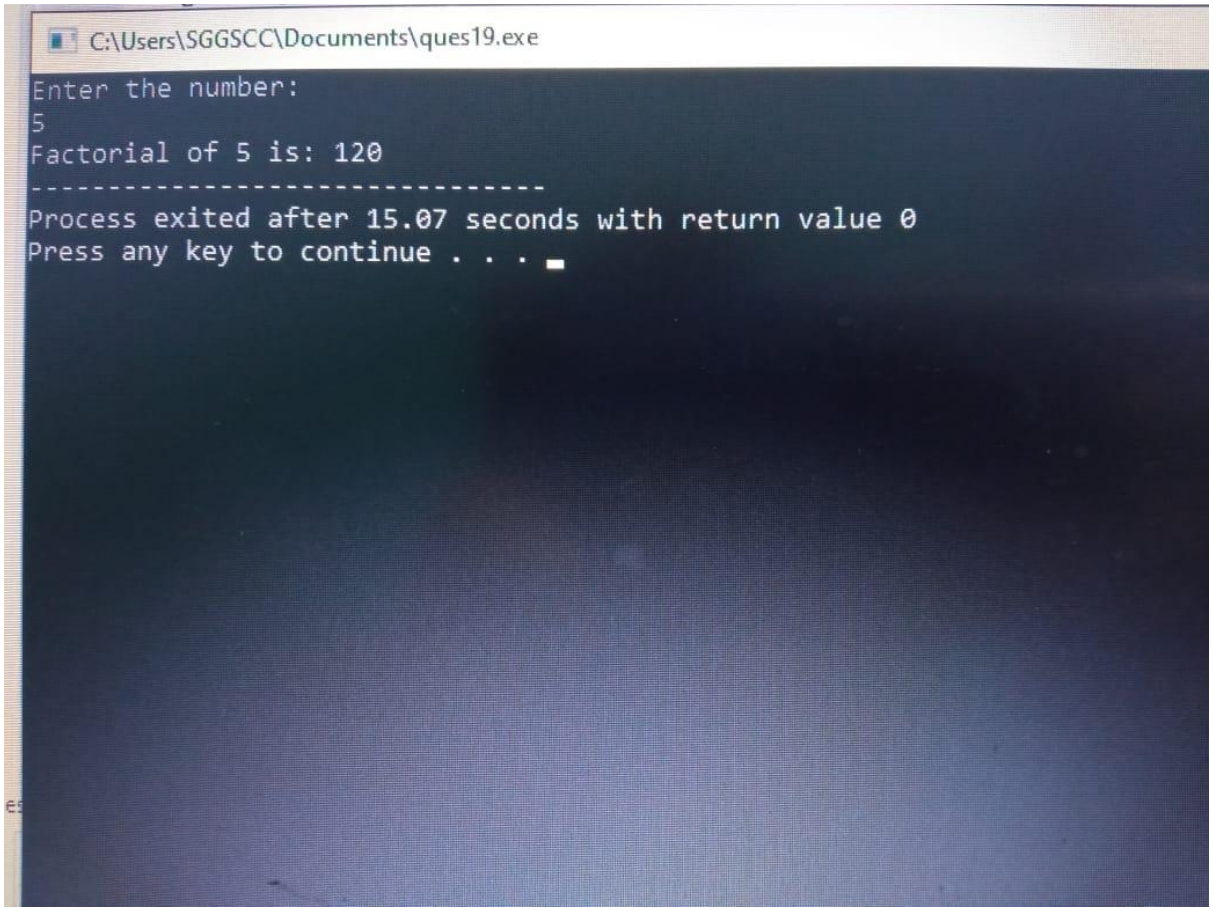
```
        next=A+B;
        cout<<next<<" ";
        A=B;
        B=next;
        count=count+1;
    }
    return;
}
int main()
{
    int n;
    cout<<"Enter the number of terms: "<<endl;
    cin>>n;
    series(n);
    return 0;
}
```



QUESTION 19:

```
#include<iostream>

using namespace std;

int factorial(int n)

{

   if(n==0||n==1)

      return 1;


   int fact=1;

   for(int i=1;i<=n;i++)

      fact=fact*i;
```

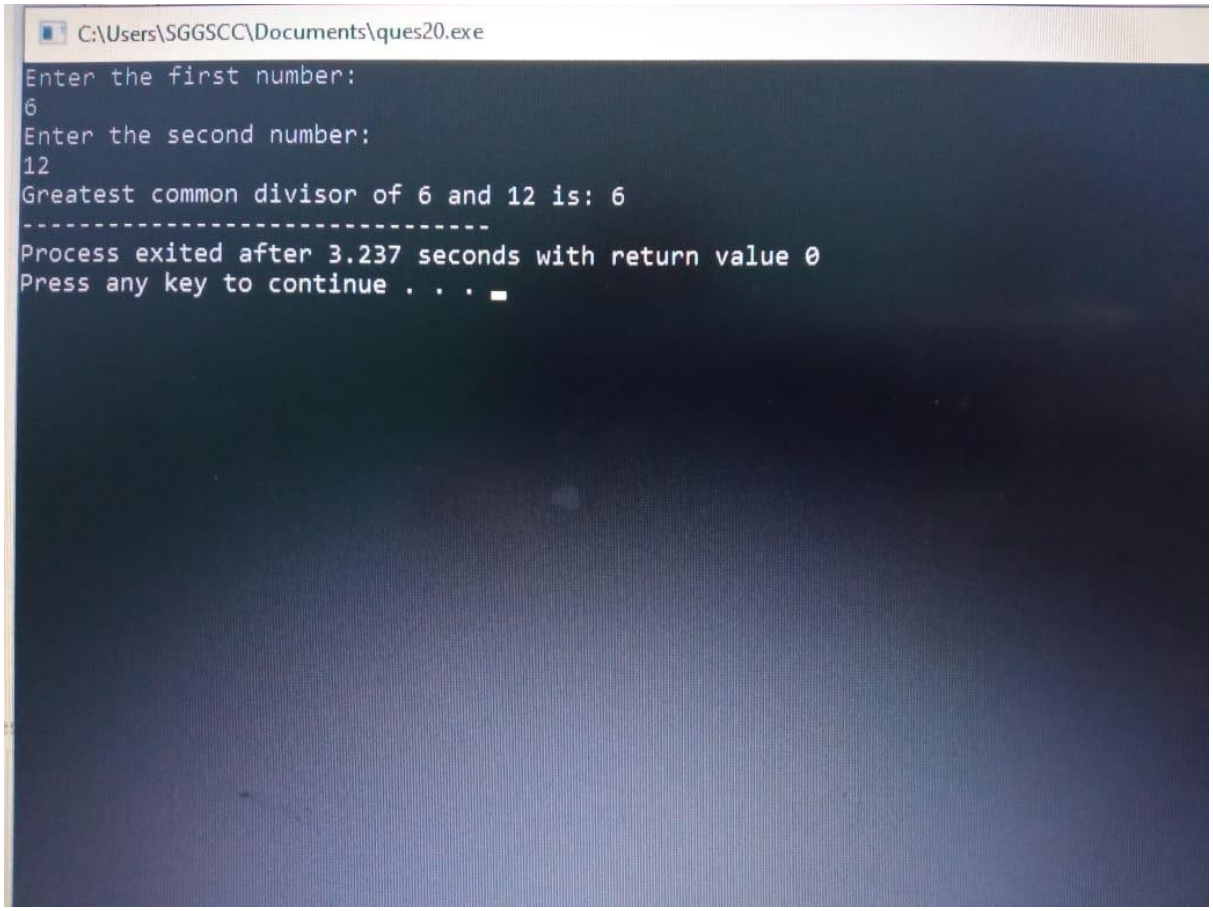
```
    return fact;
}
int main()
{
    int n;
    cout<<"Enter the number: "<<endl;
    cin>>n;

    cout<<"Factorial of "<<n<<" is: "<<factorial(n);

    return 0;
}
```



QUESTION 20:

```
#include<iostream>

using namespace std;

void calc_gcd(int first,int second)

{

   int small,gcd,i=1;

   if(first>second)

     small=second;

   else

     small=first;
```

```
    while(i<=small)
    {
        if(first % i==0 && second % i==0)
          gcd=i;
        i++;
    }
    cout<<"Greatest common divisor of "<<first<<" and "<<second<<" is: "<<gcd;
    return;
}
int main()
{
    int first,second;
    cout<<"Enter the first number: "<<endl;
    cin>>first;
    cout<<"Enter the second number: "<<endl;
    cin>>second;

    calc_gcd(first,second);
    return 0;
}
```


C:\Users\SGGSCC\Documents\ques20.exe
Enter the first number:
6
Enter the second number:
12
Greatest common divisor of 6 and 12 is: 6

Process exited after 3.237 seconds with return value 0
Press any key to continue . . .