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**C223133**

**2DM**

**Assignment 1**

**Part A**

**Problem 1:**

```cpp
#include<iostream>

#include<conio.h>

using namespace std;

int main()

{

    int i,j,x,n;

    double fc;

    cout<<"Enter the number:"<<endl;

    cin>>n;

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

    {

        cin>>x;

        fc=1;

        if(x==0)

        {

            cout<<"1"<<endl;

        }

        else

        {

            for(j=1; j<=x; j++)

            {

                fc=fc*j;

            }
```

```
            cout<<fc<<endl;

        }

    }

    return 0;

}
```

**Problem 2:**

```
#include<iostream>

using namespace std;

int main()

{

    int i,j,x,n,m,a[100];

    cout<<"Enter the number:"<<endl;

    cin>>n;

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

    {

        cin>>a[i];

        m=a[0];

    }

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

    {

        if(m<a[i+1])

        {

            m=a[i+1];

        }

        else

        {

            m=m;

        }
```

```cpp
    }
    cout<<m;
    return 0;
}
```

**Problem 3:**

```cpp
#include<iostream>
using namespace std;
int main()
{
    int i,j,n,x,f;
    cout<<"Enter the Number:";
    cin>>x;
    for(j=2; j<=x; j++)
    {
        f=0;
        for(i=2; i<j; i++)
        {
            if(j%i==0)
            {
                f=1;
            }
        }
        if(f==0)
        {
            cout<<j;
            cout<<" ";
        }
    }
```

```
    return 0;}
```

**Problem 4:**

```cpp
#include<iostream>
using namespace std;
int main()
{
    int i,x,first=0,second=1,fib=0;
    cout<<"Enter the number:";
    cin >>x;
    for(i=0; i<x; i++)
    {
        if(i==0 || i==1)
        {
            fib=i;
        }
        else
        {
            fib=first+second;
            first=second;
            second=fib;
        }
        cout<<fib;
        cout<<" ";
    }
    return 0;
}
```

**Problem 5:**

```cpp
#include<iostream>
#include<cstring>
using namespace std;
int main()
{
    char a[1000001];
    int i,x,sum=0;
    cout<<"Enter your sentece:";
    cin>>a;
    x=strlen(a);
    //cout<<x;
    for(i=0;i<x;i++)
    {
        sum=sum+a[i]-48;
    }
    cout<<sum;
    return 0;
}
```

<center>**Part B**</center>

**Problem 6:**

```cpp
#include<iostream>
using namespace std;
void Prime()
{
    int x,i,j,f,n;
    cin>>n;
    for(j=0; j<n; j++)
    {
```

```cpp
        cin>>x;

        if(x==1)

        {

            cout<<"NO"<<endl;

        }

        else

        {

            f=0;

            for(i=2; i<x; i++)

            {

                if(x%i==0)

                {

                    f=1;

                }

            }

            if(f==0)

            {

                cout<<"YES"<<endl;

            }

            else if(f==1)

            {

                cout<<"NO"<<endl;

            }

        }

    }

}

int main()

{

    int x;
```

```cpp
    Prime();

    return 0;}
```

**Problem 7:**

```cpp
#include<iostream>

using namespace std;

void Max_Min()

{

    int x;

    cin>>x;

    int i,j,mi,ma,a[x];

    for(i=0;i<x;i++)

    {

        cin>>a[i];

        mi=a[0];

        ma=a[0];

    }

    for(j=0;j<x;j++)

    {

        if(a[j]>ma)

        {

            ma=a[j];

        }

        else

        {

            ma=ma;

        }

        if(a[j]<mi)

        {

            mi=a[j];
```

```cpp
        }
        else
        {
            mi=mi;
        }
    }
    cout<<mi<<" "<<ma;
}
int main()
{
    Max_Min();
    return 0;
}
```

**Problem 8:**
```cpp
#include<iostream>
using namespace std;
int main()
{
    int i,x,remainder,binary=0,product=1;
    cin>>x;
    while(x!=0)
    {
        remainder=x%2;
        binary=binary+(remainder*product);
        x=x/2;
        product=product*10;
    }
    cout<<binary;
```

```cpp
    return 0;
}
```

**Problem 9:**

```cpp
#include<iostream>
using namespace std;
void Print()
{
    int i,x;
    cin>>x;
    for(i=1;i<=x;i++)
    {
        cout<<i;
        if(i!=x)
        {
            cout<<" ";
        }
    }
}
int main()
{
    Print();
    return 0;
}
```

**Problem 10:**

```cpp
#include<iostream>
using namespace std;
int Add(int x,int y)
{
```

```cpp
    int a;

    a=x+y;

    return a;

}

int main()

{

    int x,y,b;

    cout<<"Enter two number:";

    cin>>x>>y;

    b=Add(x,y);

    cout<<b;

    return 0;

}
```

<div align="center"><strong>Part B</strong></div>

**Problem 11:**

```cpp
#include<iostream>

using namespace std;


void print(int x)

{

    if(x==0)

    {

        return;

    }

    else

    {

        print(x-1);

        cout<<x<<endl;

    }
```

```cpp
}


int main()
{
    int x;

    cin>>x;

    print(x);

    return 0;
}
```

**Problem 12:**

```cpp
#include<iostream>

using namespace std;


void print(int x)
{
    if(x==0)
    {
        return;
    }
    else
    {
        cout<<x<<endl;

        print(x-1);
    }
}
int main()
{
    int x;
```

```cpp
    cin>>x;

    print(x);

    return 0;

}
```

**Problem 13:**

```cpp
#include<iostream>

using namespace std;


long long int factorial(int x)

{

    if(x==1)

    {

        return 1;

    }

    else

    {

        return x*factorial(x-1);

    }

}

int main()

{

    int x;

    long long int result;

    cin>>x;

    result=factorial(x);

    cout<<result;

    return 0;

}
```

**Problem 14:**

```cpp
#include<iostream>
using namespace std;
int ADD(int n,int a[])
{
    if(n<=0)
    {
        return 0;
    }
    else
    {
        return a[0]+ADD(n-1,a+1);
    }
}
int main()
{
    int i,n,a[1000],sum=0;
    cout<<"Enter the length of array: ";
    cin>>n;
    cout<<"Enter the element of array:"<<endl;
    for(i=0;i<n;i++)
    {
        cin>>a[i];
    }
    sum=ADD(n,a);
    cout<<"Sum of Array is:"<<sum<<endl;
    return 0;
}
```