

## **QUESTION 1**

### FACTORIAL

```
void main()
{
    int n, fact=1;
    double sum=0;
    cout<<"Enter the number:";
    cin>>n;
    for(int i=1;i<=n;i++)
    {
        fact=fact*i;//factorial being generated
        sum=sum+fact;
    }
    cout<<sum;
}
```

## **QUESTION 2**

AMSTRONG NUMBERS (mistyped as PERFECT NUMBER in the question paper)

```
void main()
{
    int n, digits[10], sum;
    cout<<"Enter the number n to show n amstrong numbers:";

    cin>>n;
    for(int i=1;i<=n;i++)
    {
```

```

        int m=i;
        int k=0;
        while (m>0)          //to extract digits of numbers
        {
            digits[k]=m%10;
            m=m/10;
            k++;
        }

        for(int l=0;l<k;l++)
        sum=sum+pow(digits[k],3);

        if (sum==i)
        cout<<i;
    }
}
getch();
}

```

### **QUESTION 3**

#### FRACTIONS

```

void main()
{
    int n,d;
    cout<<"Enter numerator and denominator:";
    cin>>n>>d;
    //To find HCF
    int hcf=0;
    if (n<d)

```

```

{
    for(int i=n;i>=1 && hcf==0;i--)
        if( (n%i==0) && (d%i==0)
            hcf=i;
}
else
{
    for(int i=d;i>=1 && hcf==0;i--)
        if( (n%i==0) && (d%i==0)
            hcf=i;
}
cout<<"The fraction is"<<n/hcf<<d/hcf;

```

#### **QUESTION 4**

##### CLOCK ANGLES

```

void main()
{
    int hour,min;
    int hrdeg,mindeg;
    cin>>hour>>min;

    int deg;

    hrdeg=30*hour+(0.5)*min;
    mindeg=6*min;

    deg=hrdeg-mindeg;

```

```
if(deg<0)//if deg comes negative make it positive
deg=0-deg;

if(deg>180)
deg=360-deg;

cout<<deg;

getch();
}
```

## **QUESTION 5**

### THE FOREST GAMBLE

```
void main()
{
    int length,width,x_cor1,y_cor1,x_cor2,y_cor2,field[10][10];

    cin>>length>>width;
    cout<<"Enter the field:";

    for(int i=0;i<width;i++)
        for(int k=0;k<length;k++)
            cin>>field[k][i];

    cin>>x_cor1>>y_cor1;
    cin>>x_cor2>>y_cor2;
```

```
for(int i=x_cor1;i<x_cor2;i++)
    for(int k=y_cor1;k<x_cor2;k++)
        sum=sum+field[k][i];

cout<<sum;

getch();
}
```

## **QUESTION 6**

### CATERPILLARS

```
void main()
{
    int numleaves,numcat,catlen[10],arr[100];

    cout<<"Number of leaves:";
    cin>>numleaves;

    cout<<"Number of caterpillars:";
    cin>>numcat;

    cout<<"Length of caterpillars:";
    for(int l=0;l<n;l++)
        cin>>catlen[l];

    for(int i=0;i<numleaves;i++) //storing random values in the array
        arr[i]=i;
```

```

for(i=0;i<numcat;i++) //making the value of the leave which are being
eaten equal to 0
{
    int k=0;
    while( (catlen[i]*k) +1<numleaves)
        {
            arr[catlen[i]*k) +1]=0;//e.g caterpillar of length
            2 eats 1st,3rd.. (2*k)+1
            k++;
        }
}

int count=0;
for(i=0;i<numleaves;i++)
    {
        if(arr[i]!=0)
            count++;
    }
cout<<count;
getch();
}

```