5.15 Write a program to find the area of rectangle, triangle and sphere. Use function overloading.

```
#include<iostream.h>
#include<constream.h>
#define pi 3.1428571428571428571
int calcarea(int length,int breadth);
float calcarea(double base,double height);
float calcarea(double radius);

void main()
   {
      int area1;
      float area2;
      double area3;
      area1=calcarea(10,20);
      area2=calcarea(4.5,2.1);
      area3=calcarea(3.12145);
      clrscr();
      cout<<"Area of rectangle is  : "<<area1<<endl;
      cout<<"Area of traingle is   : "<<area2<<endl;
      cout<<"Area of sphere is     : "<<area3<<endl;
      getch();
   }
      int calcarea(int length,int breadth)
   {
      return (length*breadth);
   }
      float calcarea(double base,double height)
   {

      return ((0.5)*base*height);
   }
      float calcarea(double radius)
   {
      return ((4/3)*pi*radius*radius*radius);
   }
```

#include<iostream.h>
#include<conio.h>

```
class  num
{
 private:
 int a,b,c;
 public:
num(int m, int j , int k); // declaration of constructor with arguments

 void show()
 {
 cout <<"\n a= "<<a <<" b= "<<b <<" c= "<<c;
 }
};

num :: num (int m, int j , int k)  // definition of constructor with argument
{
  a=m;
  b=j;
  c=k;
}

main()
{
  clrscr();
  num x=num(4,5,7);    // Explicit call
  num y(1,2,8);        // Implicit call
  x.show();
  y.show();
  return 0;
}
```

OUTPUT

a= 4 b= 5 c= 7

a= 1 b= 2 c= 8

Explanation: In the above program, *x* and *y* are objects of class num. When objects are creat

FRIEND FUNCTION

```
#include<iostream.h>
#include<conio.h>
class A;
class B
{
private:
int a;
float b;
Public:
friend void display(A,B);
void get()
{
cout<<"\n enter the integer number:";
cin>>a;
cout<<"\n enter the float number:";
cin>>b;
}
};
class A
{
private:
int c;
float d;
public:
friend void display(A,B);
void get()
{
cout<<"\n enter the integer number:";
cin>>c;
cout<<"\n enter the float number:";
cin>>d;
}
};
void display(A m, B n);
```

```
{
cout<<"\n integer results are:"<<m.c<<"and"<<n.a;
cout<<"\n float results are:"<<m.d<"and"<<n.b;
}
void main()
{
clrscr();
A x1; x1.get();
B x2; x2.get();
display(x1,x2);
getch();
}
```

OUTPUT:

Enter the integer number : 8

Enter the Float Number :9.9

Enter the integer number : 9

Enter the float number :9.9

Integer Results are : 8 and 9

Float Result are : 9.9 and 9.9

EMPLOYEE DETAILS USING FILES

CODING:

```
#include<iostream.h>
#include<fstream.h>
#include<conio.h>
void main()
{
clrscr();
char data[100];
int line;
ofstream outfile;
outfile.open("emp.txt");
cout<<"Enter the name of employee:";
cin.getline(data,10);
outfile<<data<<endl;
cout<<"Enter the id:";
cin.getline(data,10);
outfile<<data<<endl;
cout<<"Department:";
cin.getline(data,10);
outfile<<data<<endl;
cout<<"Salary:";
cin.getline(data,10);
outfile<<data<<endl;
outfile.close();
ifstream infile;
infile.open("emp.txt");
cout<<"\n Reading from file\n";
infile>>data;
cout<<data<<endl;
infile>>data;
cout<<data<<endl;
infile>>data;
cout<<data<<endl;
```

```
infile>>data;
cout<<data<<endl;
infile.close();
getch();
}
```

OUT PUT:

```
Enter the name of employee: Raju
Enter the id: 1
Department: Production
Salary: 20000
Reading from file
Raju
1
Production
20000
```

VIRTUAL FUNCTION

```
#include<iostream.h>
#include<conio.h>
#include<math.h>
class shape
{
public:
virtual float cal_area()
{
return(0);
}
virtual float cal_per()
{
return(0);
}
};
class square : public shape
{
float area,peri,a;
public:
void get()
{
cout<<"\n\t square";
cout<<"\n\t.........";
cout<<"\n side of square:";
cin>>a;
}
float cal_area()
{
area=a*a;

return(area);
}
float cal_per()
{
peri=4*a;
return(peri);
}
```

```
};
class rectangle : public shape
{
public:
float area,peri,l,b;
void get()
{
cout<<"\n\t rectangle";
cout<<"\n\t.....";
cout<<"\n length of the rectangle:";
cin>>l;
cout<<"\n breadth of the rectangle:";
cin>>b;
}
float cal_area()
{
area=l*b;
return(area);
}
float cal_per()
{
peri=2*(l+b);
return(peri);

}
};
class triangle : public shape
{
public:
float area,peri,a,b,c,br,h;
viod get()
{
cout<<"\n\t traingle";
cout<<"\n\t.....";
cout<<"\n side 1:";
cin>>a;
cout<<"\n side 2:";
cin>>b;
cout<<"\n side 3:";
cin>>c;
cout<<"\n breadth of the triangle:";
```

```
cin>>br;
cout<<"\n height of the triangle:";
cin>>h;
}
float cal_area()
{
area=(0.5)*br*h;
return(area);
}
float cal_per()
{
peri=a+b+c;

return(peri);
}
};
void main()
{
clrscr();
shape s1,*bpt;
square s;
rectangle r;
triangle t;
cout<<"\n\t area and perimeter calculation:";
cout<<"\n\t.....";
bpt=&s1;
bpt->cal_area();
bpt->cal_per();
bpt=&s;
s.get();
cout<<"\n\t area of square:"<<bpt->cal_area();
cout<<"\n\t perimeter of square:"<<bpt->cal_per();
bpt=&r;
r.get();
cout<<"\n\t area of rectangle:"<<bpt->cal_area();
cout<<"\n\t perimeter of rectangle:"<<bpt->cal_per();
bpt=&t;
t.get();
cout<<"\n\t area of triangle:"<<bpt->cal_area();
cout<<"\n\t perimeter of triangle:"<<bpt->cal_per();
getch();
```

}

OUTPUT:

Area and perimeter calclulation:
.....
Square
.....
Side of Square : 4
Area of Square : 16
Perimeter of Square : 16
Rectangle
.....
Length of Rectangle : 6
Breadth of Rectangle : 8
Area of Square : 48
Perimeter of Square : 28
Triangle
.....
side1 : 4

side2 : 3
side3 : 9

Breadth of Triangle : 2
Height of Triangle : 4
Area of Square :4
Perimeter of Square : 16