Q1. D

Q2. A

Q3. A

Q4. A

***PROBLEM STATEMENT-1(5-Marks)***

**using namespace std;**

**#include<iostream>**

**class Object**

**{**

**protected:**

**double r, h;**

**public:**

**void getdata()**

{

double a,b;

cin>>a>>b;

r=a;

h=b;

}

};

class Cone:public Object

{

double Cone\_area;

public:

void display\_area()

{

double pi=3.14;

Cone\_area=(pi\*r\*r\*h)/3;

cout<<Cone\_area<<endl;

}

};

class Cylinder:public Object

{

double Cylinder\_area;

public:

void display\_area()

{

double pi=3.14;

Cylinder\_area=pi\*r\*r\*h;

cout<<Cylinder\_area;

}

};

**int main()**

**{**

**Cone c1;**

**Cylinder c2;**

**c1.getdata();**

**c2.getdata();**

**c1.display\_area();**

**c2.display\_area();**

**return 0;**

**}**

***PROBLEM STATEMENT-2(10-Marks)***

**#include<iostream>**

**using namespace std;**

**class person**

**{**

**protected:**

**char name[20];**

**int age;**

**char sex;**

public:

person(char \*n,int a,char s)

{

strcpy(name,n);

age=a;

sex=s;

}

void show\_p\_data()

{

cout<<"Name:"<<name<<endl;

cout<<"Age:"<<age<<endl;

cout<<"Sex:"<<sex<<endl;

}

};

class student:public person

{

protected:

int rollno;

char course[10];

public:

student(char \*n,int a,char s,int r,char \*c):person(n,a,s)

{

rollno=r;

strcpy(course,c);

}

void show\_s\_data()

{

show\_p\_data();

cout<<"Rollno:"<<rollno<<endl;

cout<<"Course:"<<course;

}

};

class faculty:public person

{

protected:

char design[20];

char deptt[20];

public:

faculty(char \*n,int a,char s,char \*des,char \*dpt):person(n,a,s)

{

strcpy(design,des);

strcpy(deptt,dpt);

}

void show\_f\_data()

{

cout<<"Designation:"<<design<<endl;

cout<<"Department:"<<deptt<<endl;

}

};

class publications:public faculty

{

protected:

int no\_rp;

int no\_books;

public:

publications(char \*n,int a,char s,char \*des,char \*dpt,int rp,int books):faculty(n,a,s,des,dpt)

{

no\_rp=rp;

no\_books=books;

}

void show\_pub\_data()

{

show\_p\_data();

show\_f\_data();

cout<<"Research papers:"<<no\_rp<<endl;

cout<<"Books:"<<no\_books;

}

};

**main()**

**{**

**int choice;**

**cin>>choice;**

**if(choice==1)**

**{**

**char n[20],s,c[20];**

**int a,r;**

**cin.ignore();**

**cin.getline(n,20);**

**cin>>a;**

**cin>>s;**

**cin>>r;**

**cin>>c;**

**student stu(n,a,s,r,c);**

**stu.show\_s\_data();**

**}**

**else if(choice==2)**

**{**

**char n[20],s,des[20],dpt[20];**

**int a,rp,books;**

**cin.ignore();**

**cin.getline(n,20);**

**cin>>a;**

**cin>>s;**

**cin>>des;**

**cin>>dpt;**

**cin>>rp>>books;**

**publications p(n,a,s,des,dpt,rp,books);**

**p.show\_pub\_data();**

**}**

**}**