CHAPTER 04 EXERCISE SOLUTION

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BSCS IST REGULAR

Q NO 1: Write a program that prints a text of 4 lines consisting of characters, integer values and floating-point values using cout statement.

```
#include<iostream>

using namespace std;

int main()

{

    cout<<"hello world"<<endl;

    cout<<"U"<<endl;

    cout<<"25"<<endl;

    cout<<"12.5f"<<endl;

    return 0;
```

Q NO 2: Write a program that inputs radius of sphere from the user. Calculates its volume and surface area using the formula Area = 4πR2 and circumference 4/3πR³ whereπ=3.14.

```
#include<iostream>

using namespace std;


int main()

{

    float radius;

    cout<<"Enter radius of Sphere ";
```

```
    cin>>radius;


    float area, volume;
    area = 4 * 3.14f * radius * radius;
    volume = 4/3 * 3.14f * radius*radius*radius;


    cout<<"Area is "<<area<<endl;
    cout<<"Volume is "<<volume<<endl;
    return 0;
}
```

Q NO 3: Write a program to find out the area of triangle when three sides a, b and c of the triangle are given. Use appropriate statements to input the values of a, b and c from the keyboard. Formula for the area of triangle is area = √(s-a) (s-b)(s-c) ,where s=(a+b+c)/2.

```
#include<iostream>
#include<math.h>
using namespace std;
int main ()
{
float a,b,c;
cout<<"Enter Triangle side a";
cin>>a;
cout<<"Enter Triangle side b";
cin>>b;
cout<<"Enter Triangle side c";
cin>>c;
float s= (a+b+c)/2.0f;
```

```
double area= sqrt (s*(s-a)(s-b)(s-c));

cout <<"Area of Triangle"<<area;


return 0;

}
```

Q NO 4: Write a program that inputs miles from the user and convert miles into kilometers. One mile is equal to 1.609 kilometer.

```
#include<iostream>

using namespace std;

int main()

{

    float miles,kilometers;

    cout<<"enter miles";

    cin>>miles;

    kilometers=1.609*miles;

    cout<<"kilometers="<<kilometers<<endl;

    return 0;

}
```

Q NO 5: Write a program that inputs 4 numbers and calculates the sum, average, and product of all the numbers.

```
#include<iostream>

#include<math.h>

using namespace std;

int main()

{

    int n1,n2,n3,n4;
```

```
    cout<<"enter number 1"<<endl;
    cin>>n1;
    cout<<"enter number 2"<<endl;
    cin>>n2;
    cout<<"enter number 3"<<endl;
    cin>>n3;
    int sum,product,average;
    sum=n1+n2+n3+n4;
    product=n1*n2*n3*n4;
    average=sum+4.0f;
    cout<<"sum is"<<sum<<endl;
    cout<<"product is"<<product<<endl;
    cout<<"average is"<<average<<endl;

    return 0;

}
```

QNO6: Write a program that inputs age in years and displays age in days and months.

```
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
```

```
int age,years,months,days;
cout<<"enter age in    years";
cin>>age;
months=age*12;
days=age*30;
cout<<"age in months"<<months<<endl;
cout<<"age in days"<<days<<endl;
return 0;
}
```

QNO7: Write a program that inputs a number from user and displays its square and cube.

```
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
      int n,s,c;
      cout<<"enter a number";
      cin>>n;
      s=n*n;
      c=n*n*n;
    cout<<"square of number is"<<s<<endl;
    cout<<" cube of number is"<<c<<endl;
    return 0;
}
```

QNO8: Write a program that inputs total pages of a book, number of pages a person reads in one day and number of days a person has read the book. It displays number of pages that have been read and number of pages remaining.

```
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
int totalpages,noofpagesinaday,noofdays,pagesread,remainingpages;
cout<<"total pages of book";
cin>>totalpages;
cout<<"noofpagesinaday";
cin>>noofpagesinaday;
cout<<"noofdays";
cin>>noofdays;
pagesread=noofpagesinaday*noofdays;
remainingpages=totalpages-pagesread;
cout<<"no of pages read is"<<pagesread<<endl;
cout<<"remaining pages is"<<remainingpages<<endl;
return 0;
}
```

QNO9: A car can travel 5.3 miles in 1 liter. Write a program that inputs petrol in liters and displays how much distance the car can cover using the

available petrol.

```
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
    float miles,petrol,litre,distance;
    cout<<"petrol in litres"<<endl;
    cin>>petrol;
    distance=5.3*petrol;
    cout<<"distance is"<<distance<<endl;
    return 0;



}
```

QNO10: Write a program that inputs total number of student in a class and fee per student. It displays total fee collected from the class.

```
#include<iostream>
using namespace std;
int main()
{
   float totalstudents,fee,totalfee;
   cout<<"total students";
   cin>>totalstudents;
      cout<<"fee per student";
```

```
    cin>>fee;
    totalfee=totalstudents*fee;
    cout<<"total fee"<<totalfee<<endl;
    return 0;
}
```

QNO11: Write a program that inputs temperature from the user in Fahrenheit and converts it into Celsius degree using formula C-5/9 (F-32).

```
#include<iostream>
using namespace std;
#include<math.h>
int main ()
{
float f, C;
cout<<"enter temp in Farhenhit";
cin>>f;
C=5.0/9.0*(f-32);
cout<<"temp in Celsius is"<<C<<endl;



return 0;
}
```

QNO12: Write a program that inputs a 3-digit number and displays its digits in separate three lines. For example if the user enters 123, the program displays the output as follows:

1

2

3

```
#include<iostream>

using namespace std;

#include<math.h>

int main ()

{

int n,a,b,c;

cout<<"Enter a 3 digit number";

cin>>n;

a=n%10;

n=n/10;

b=n%10;

n=n/10;

c=n%10;

n=n/10;

cout<<c<<endl<<b<<endl<<a<<endl;


return 0;

}
```

QNO13: Write a program to show following output using one cout statement:

1 2 3 4 5

6 7 8 9 10.

```
#include<iostream>

#include<math.h>
```

```
using namespace std;


int main()

{

cout<<"output"<<endl;







cout<<"\t"<<"1"<<"\t"<<"2"<<"\t"<<"3"<<"\t"<<"4"<<"\t"<<"5"<<endl;

	cout<<"\t"<<"6"<<"\t"<<"7"<<"\t"<<"8"<<"\t"<<"9"<<"\t"<<"10"<<endl;


	return 0;

}
```

QNO 14: Write a program to calculate the volume (V) of a cube by taking measures from the user. V = (l*h*w).

```
#include<iostream>

using namespace std;

int main()

		{

float v,l,w,h;


cout<<"enter length of cube";

cin>>l;

cout<<"enter width of cube";

cin>>w;
```

```
cout<<"enter height of cube";

cin>>h;

v=l*w*h;

cout<<"volume of cube is"<<v<<endl;

return 0;



}
```

QNO15: Write a program that inputs x and y coordinates for two points and computes distance between two points using the formula: Distance = √(x2-x1)^2+(y2-y1)^2.

```
#include <iostream>

#include <math.h>

using namespace std;


int main()

{

int x1,x2,y1,y2;

cout<<"enter x1 ";

cin>>x1;

cout<<"enter x2 ";

cin>>x2;

cout<<"enter y1 ";

cin>>y1;

cout<<"enter y2 ";

cin>>y2;
```

```
  float distance;
  distance=sqrt(((x2-x1)*(x2-x1))+((y2-y1)*(y2-y1)));
cout<<"distance"<<distance<<endl;
        return 0;
}
```

QNO16: Write a program to swap the values of three variables with using fourth variable.

```
#include <iostream>
#include <math.h>
using namespace std;

int main()
{
int n1,n2,n3,n4;
cout<<"enter three numbers"<<endl;
cin>>n1>>n2>>n3;
n4=n1;
n1=n2;
n2=n3;
n3=n4;
cout<<"values after swapping"<<endl;
cout<<"\t"<<n1<<"\t"<<n2<<"\t"<<n3<<endl;
        return 0;
```

```
}
```

QNO17: Write a program that calculates the arc of length of a convex lens by taking radius of arc and angle made by arc. (Formula: length = radius *angle) .

```
#include<iostream>
#include<math.h>
using namespace std;
int main ()
{
float lengthoflens,radius,angle;
cout<<"Enter radius of lens"<<endl;
cin>>radius;
cout<<"Enter angle of lens"<<endl;
cin>>angle;
lengthoflens=radius*angle;
cout<<"length of lens is"<<lengthoflens<<endl;



return 0;
}
```

QNO18: Write a program that inputs pounds from the user and converts it into kilograms.

```
#include<iostream>

#include<math.h>

using namespace std;

int main ()

{

float pounds, kilograms;

cout<<"enter pounds"<<endl;

cin>>pounds;

kilograms=0.454*pounds;

cout<<"kilograms is"<<kilograms<<endl;




return 0;

}
```

QNO19: Write a program that computes the area of a sector of a circle when theta is the angle in radians between the radii.

```
#include<iostream>

#include<math.h>

using namespace std;

int main ()

{

float theta,radius,area;

cout<<"enter radius"<<endl;
```

```
cin>>radius;
cout<<"enter theta"<<endl;
cin>>theta;
area=theta/360*radius*radius;
cout<<"area is"<<area<<endl;


return 0;
}
```

QNO21:Write a program to enter a letter and display the next two letters.

```
#include<iostream>
using namespace std;
int main()
{
char ch;
cout<<"enter a letter"<<endl;
cin>>ch;
cout<<"next two letters are:"<<endl;
ch++;
cout<<ch<<endl;
ch++;
cout<<ch<<endl;



return 0;
}
```

QNO22:Write a program that inputs five-digit number through the keyboard and

calculates the sum of its digits.

```
#include<iostream>

using namespace std;

int main()

{

int num;

cout<<"enter a five digit number"<<endl;

cin>>num;

int dig1,dig2,dig3, dig4,dig5,sum;

dig1=num%10;

num=num/10;

dig2=num%10;

num=num/10;

dig3=num%10;

num=num/10;

dig4=num%10;

num=num/10;

dig5=num%10;

sum=dig1+dig2+dig3+dig4+dig5;

cout<<"sum of all five digits is:"<<sum<<endl;


return 0;

}
```

QNO23: Write a program that inputs Basic Salary and calculates 35% dearness allowance, 25% house rent and then displays the gross salary.

```
#include<iostream>

using namespace std;

int main()

{

float basicsalary, grosssalary;

cout<<"input basic salary:"<<endl;

cin>>basicsalary;

float ha,da;

ha=(35/100.0f)*basicsalary;

da=(25/100.0f)*basicsalary;

grosssalary=basicsalary+da+ha;

cout<<"gross salary is:"<<grosssalary<<endl;

return 0;

}
```

QNO24: Write a program that inputs two times in hh:mm:ss format, adds both times and displays the total time.

```
#include<iostream>

using namespace std;

int main()

{

int hh1, hh2, mm1, mm2, ss1, ss2, hh=0, mm=0, ss=0;

        cout<<"Enter time 1 in hh:mm:ss format : ";

        cin>>hh1>>mm1>>ss1;

        cout<<"Enter time 2 in hh:mm:ss format : ";
```

```
    cin>>hh2>>mm2>>ss2;
    ss = ss1 + ss2;
    mm = ss / 60;
    ss = ss % 60;
    mm = mm + (mm1 + mm2);
    hh = mm / 60;
    mm = mm % 60;
    hh = hh + (hh1 + hh2);
    cout<<"Sum of two times is : "<<hh<<":"<<mm<<":"<<ss<<endl;
    return 0;

}
```

QNO25: Write a program that inputs principal amount, rate of interest and total time. It calculates the compound interest and displays it.

```
#include<iostream>
using namespace std;
int main()
{
float p,rot,ci,totaltime;
cout<<"enter principal income:"<<endl;
cin>>p;
cout<<"enter rate of interest:"<<endl;
cin>>rot;
cout<<"enter total time:"<<endl;
cin>>totaltime;
```

```
ci=p*(rot/100.0f)*totaltime;

cout<<"compound interest is:"<<ci<<endl;


return 0;

}
```

QNO26: Write a program that inputs a number and displays its corresponding ASCII code.

```
#include<iostream>

using namespace std;

int main()

{

char ch;

cout<<"enter a number"<<endl;

cin>>ch;

int numb=ch;

cout<<"the ASCCI CODE FOR ch is"<<numb<<endl;




return 0;

}
```

QNO27: Write a program that displays the following output:

Number	Square.	Cube
1	1	1
2	4	8
3	9	27

4 16 64

5 25 125

```
#include<iostream>
using namespace std;
int main()
{
int number,square,cube;
cout<<"number<<square<<cube"<<endl;
cout<<"1 \t 1 \t 1"<<endl;
        cout<<"2 \t 4 \t 8"<<endl;
        cout<<"3 \t 9 \t 27"<<endl;
        cout<<"4 \t 16 \t 64"<<endl;
        cout<<"5 \t 25 \t 125"<<endl;
return 0;
}
```

QNO28: Write a program that inputs marks obtained by a student in five subjects. It then calculates and displays the total marks and percentage.

```
#include<iostream>
#include<math.h>
using namespace std;
int main ()
{
float marksinfivesubjects,totalmarks,percentage;
```

```
cout<<"Enter marks in five subjects"<<endl;

cin>>marksinfivesubjects;

cout<<"enter total marks"<<endl;

cin>>totalmarks;

percentage=marksinfivesubjects*100/totalmarks;

cout<<"percentage is"<<percentage<<endl;


return 0;

}
```

THE END.