

# **Sri Krishna College of Technology**

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Branch :Sri Krishna College of Technology Department :CyberSecurity

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## **2022\_26\_I\_Problem Solving using CPP\_IRC**

### **IRC\_CPP\_COD\_BASICS AND OPERATORS**

Attempt : 1

Total Mark : 200

Marks Obtained : 200

### **Section 1 : CODING**

#### **1. Problem Statement:**

Welcome Message

"Pine Tree" is a recently launched startup Event Management company. The company gained a good reputation within a short span because of its highly reliable service delivery.

Nikhil, the founder of this company wished to take the company's services to the next step and decided to design an Event Management System that would let its Customers plan and host events seamlessly via an online platform. As a part of this requirement, Nikhil wanted to write a piece of code for his company's Examly Event Management System that will welcome all the Customers who are using it. Help Nikhil on the task.

***Answer***

```
// You are using GCC
#include<iostream>
int main()
{
    std::cout<<"Welcome to Examly Event Management System";
}
```

**Status :** Correct

**Marks :** 10/10

## 2. Problem Statement:

Number of events

"Pine Tree" Company has signed up a big-time Event Management deal from the Rotary Youth Club for a Trade Fair organized at Codissia Complex, wherein all startup companies in the Software industry are demonstrating their latest products and services and meet with industry partners and Customers.

Examly Event Management System has to be modified to write a piece of code that will get the input of the number of events to be hosted for the Fair at Codissia from its users and display the same. Help the company accomplish the requirement.

### **Answer**

```
// You are using GCC
#include<iostream>
using namespace std;
int main()
{
    int i;
    cin>>i;
    cout<<"Number of events hosted in Codissia is "<<i;
    return 0;
}
```

**Status :** Correct

**Marks :** 10/10

### 3. Problem Statement:

#### Event Details

Be it a last-minute get-together, a birthday party, or corporate events, the "Pine Tree" Event Management Company helps you plan and execute it better and faster. Nikhil, the founder of the company wanted the Examly Event Management System to get and display the event details from his Customers for every new order of the Company.

Write a program that will get the input of the event details like the name of the event, type of the event, number of people expected, a string value (Y/N) telling whether the event is going to be a paid entry, and the projected expenses (in lakhs) for the event. The program should then display the input values as formatted output.

#### **Answer**

```
// You are using GCC
#include<iostream>
using namespace std;

int main()
{
    string a,b;
    int c;
    char d;
    double e;
    getline(cin,a);
    cin>>b>>c>>d>>e;
    cout<<"Event Name : "<<a<<endl;
    cout<<"Event Type : "<<b<<endl;
    cout<<"Expected Count : "<<c<<endl;
    cout<<"Paid Entry : "<<d<<endl;
    cout<<"Projected Expense : "<<e<<"L";

    return 0;
}
```

**Status : Correct**

**Marks : 10/10**

#### 4. Problem Statement :

##### Naming Ceremony

Hermoine and Ron were blessed with a baby. They need to name their child and the priest doesn't know the actual spelling of it. So, help them to get and display the child's name.

##### **Answer**

```
// You are using GCC
#include<iostream>
using namespace std;

int main()
{
    string a;
    cin>>a;
    cout<<a;

    return 0;
}
```

**Status : Correct**

**Marks : 10/10**

#### 5. Problem Statement :

##### Round Off

Write a program to get a float value from the user and display it in the below-mentioned format. HINT: Use ceil() and floor() functions from header file cmath.

##### **Answer**

```
// You are using GCC
#include<bits/stdc++.h>
using namespace std;
```

```

int main()
{
    float k;
    cin>>k;
    cout<<floor(k)<<endl;
    cout<<ceil(k)<<endl;
    cout<<floor(k)<<endl;

    return 0;
}

```

**Status :** Correct

**Marks :** 10/10

## 6. Problem Statement :

Write a program to generate the equivalent ASCII value for a given character.

### **Answer**

```

// You are using GCC
#include<iostream>
using namespace std;

```

```

int main()
{
    char g;
    cin>>g;
    cout<<int(g);

    return 0;
}

```

**Status :** Correct

**Marks :** 10/10

## 7. Problem Statement :

In Japan, there was a very huge Tsunami. Millions and millions worth of buildings and property were destroyed. Many people lost their lives while some of them were injured and few were safe. A news reporter arrives at

the spot to take the current survey regarding the situation of the people alive, dead and injured. He wanted to publish it in the newspaper and reach out to other countries asking to help the affected people. Can you please help him in this noble cause by writing a program to generate the newspaper report?

**Answer**

```
// You are using GCC
#include<iostream>
using namespace std;
int main()
{
    int a,b,c;
    cin>>a>>b>>c;
    cout<<"1)Dead : "<<a<<endl;
    cout<<"2)Injured : "<<b<<endl;
    cout<<"3)Safe : "<<c<<endl;
    cout<<"Please help the people who are suffering!!!";

    return 0;
}
```

**Status :** Correct

**Marks :** 10/10

**8. Problem Statement :**

Write a program to perform arithmetic operations such as addition, subtraction, multiplication, and division.

**Answer**

```
// You are using GCC
#include<iostream>
using namespace std;
int main()
{
    int a,k,sum,sub,mul,d;
    cin>>a>>k;
    sum=a+k;
    sub=a-k;
```

```

mul=a*k;
d=a/k;

cout<<sum<<endl;
cout<<sub<<endl;
cout<<mul<<endl;
cout<<d<<endl;

return 0;
}

```

**Status :** Correct

**Marks :** 10/10

## 9. Problem Statement :

### Cricket Stadium

There was a large ground in the center of the city which is rectangular in shape. The Corporation decides to build a Cricket stadium in the area for school and college students, But the area was used as a car parking zone. In order to protect the land from using as an unauthorized parking zone, the corporation wanted to protect the stadium by building a fence. In order to help the workers to build a fence, they planned to place a thick rope around the ground. They wanted to buy only the exact length of the rope that is needed. They also wanted to cover the entire ground with a carpet during the rainy season. They wanted to buy only the exact quantity of carpet that is needed. They requested your help. Can you please help them by writing a program to find the exact length of the rope and the exact quantity of carpet that is required?

### Answer

```

// You are using GCC
#include<iostream>
using namespace std;
int main()
{
    int l,b,peri,area;
    cin>>l>>b;
}

```

```
peri=2*(l+b);
area=l*b;

cout<<peri<<endl;
cout<<area<<endl;

return 0;

}
```

**Status :** Correct

**Marks :** 10/10

## 10. Problem Statement :

### Average Calculation

A teacher wants to compute the average of 5 students in her class. Write a program to help her to find the average. The average is the sum of all the numbers, then divided by the total numbers.

### Answer

```
// You are using GCC
#include<iostream>
#include<iomanip>
using namespace std;
int main()
{
    float s1,s2,s3,s4,s5,avg;
    cin>>s1>>s2>>s3>>s4>>s5;

    avg=(s1+s2+s3+s4+s5)/5;

    cout<<fixed<<setprecision(2);
    cout<<avg;

    return 0;
}
```

**Status :** Correct

**Marks :** 10/10



## 11. Problem Statement :

### Sports day Celebration

Training for sports day has begun and the physical education teacher has decided to conduct some team games. The teacher wants to split the students in higher secondary into equal-sized teams. In some cases, there may be some students who are left out from the teams and he wanted to use the left out, students, to assist him in conducting the team games. For instance, if there are 50 students in a class and if the class has to be divided into 7 equal-sized teams, 7 students will be there in each team and 1 student will be left out. That 1 student will assist the PET. With this idea in mind, the PET wants your help to automate this team splitting task. Can you please help him out?

### **Answer**

```
// You are using GCC
#include<iostream>
using namespace std;
int main()
{
    int a,k,tm,bal;
    cin>>a>>k;
    tm=a/k;
    bal=a%k;

    cout<<tm<<endl;
    cout<<bal<<endl;

    return 0;
}
```

**Status :** Correct

**Marks :** 10/10

## 12. Problem Statement:

### Pranav and Change

Pranav, an enthusiastic kid visited the "Fun Fair 2017" along with his family. His father wanted him to purchase entry tickets from the counter for his family members. Being a little kid, he is just learning to understand units of money. Pranav has paid some amount of money for the tickets but he wants your help to give him back the change of Rs. N using the minimum number of rupee notes.

Consider a currency system in which there are notes of seven denominations, namely, Rs. 1, Rs. 2, Rs. 5, Rs. 10, Rs. 50, Rs. 100. If the change is given to Pranav Rs. N is input, write a program to computer smallest number of notes that will combine to give Rs. N.

### **Answer**

```
// You are using GCC
#include<iostream>
using namespace std;
int main()
{
    int amt,a,b,c,d,e,f,g,h,i,j,k,l,tot;
    cin>>amt;
    a=amt/100;
    b=amt%100;
    c=b/50;
    d=b%50;
    e=d/10;
    f=d%10;
    g=f/5;
    h=f%5;
    i=h/2;
    j=h%2;
    k=j/1;
    l=j%1;
    tot=a+c+e+g+i+k;
    cout<<tot;

    return 0;
}
```

**Status :** Correct

**Marks :** 10/10

13. Write a program to swap two given numbers without using temporary variables.

**Answer**

```
// You are using GCC
#include<iostream>
using namespace std;
int main()
{
    int q,w;
    cin>>q>>w;
    cout<<"Before swapping"<<endl;
    cout<<"a = "<<q;
    cout<<" b = "<<w;
    cout<<endl;
    cout<<endl;

    q=q+w;
    w=q-w;
    q=q-w;

    cout<<"After swapping"<<endl;
    cout<<"a = "<<q;
    cout<<" b = "<<w;

    return 0;
}
```

**Status :** Correct

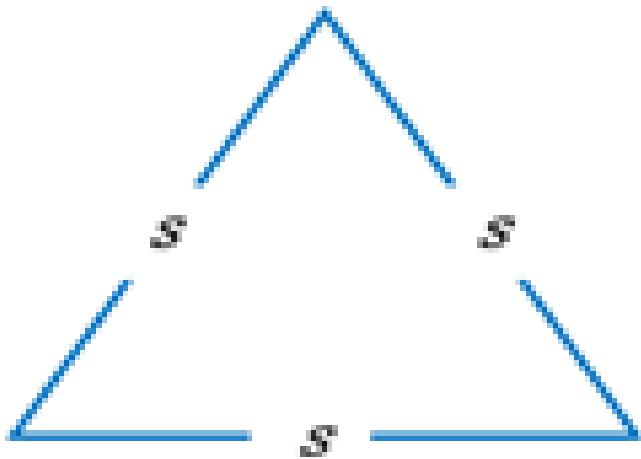
**Marks :** 10/10

14. Problem Statement:

Area of an equilateral triangle:

Ragu's grandparents have their land in an equilateral triangle shape. They have to sow apple seeds for cultivation. Calculate the total area of the land so that they can buy the required amount of seeds. Round off the area to two decimal places.

.



$$A = \frac{\sqrt{3}}{4} s^2$$

**Answer**

```
// You are using GCC
#include<iostream>
#include<iomanip>
using namespace std;
int main()
{
    float s,area;
    cin>>s;

    area=s*(1.73205080/4)*s;

    cout<<fixed<<setprecision(2);
    cout<<area;

    return 0;
}
```

**Status :** Correct

**Marks :** 10/10

15. Problem Statement:

Evaluation of expression:

Sasikumar is a mathematics teacher and he is preparing a question paper of his own, So he needs to calculate the answers to the questions he prepared without any errors. As he is busy with his work he has no time to make it.

Write the program and trace the output for the following expressions:

- a)  $x = a + b * 5 / 4 + c \% 3 * 5$ , where a, b and c are variables ( inputs ).
- b)  $y = u > v ? u : v$  ; where u and v are variables ( inputs ).
- c)  $z = ++i \&\& ++j \&\& ++k$ ; where i, j, and k are variables ( inputs ).

**Answer**

```
// You are using GCC
#include<iostream>
using namespace std;
int main()
{
    int a,b,c,u,v,i,j,k,x,y,z;
    cin>>a>>b>>c>>u>>v>>i>>j>>k;
    x=a+b*5/4+c%3*5;
    y=u>v?u:v;
    z=++i&&++j&&++k;

    cout<<"x = "<<x<<endl;
    cout<<"y = "<<y<<endl;
    cout<<"z = "<<z<<endl;

    return 0;
}
```

**Status : Correct**

**Marks : 10/10**

16. Problem Statement :

## ASCII Values - II

Write a program to get a number(ASCII value) as input and print its equivalent character.

### **Answer**

```
// You are using GCC
#include<iostream>
using namespace std;
int main()
{
    int k;
    cin>>k;
    cout<<char(k);

    return 0;
}
```

**Status :** Correct

**Marks :** 10/10

## 17. Problem Statement :

The newspaper Agency

Each Sunday, a newspaper agency sells  $w$  copies of a special edition newspaper for Rs. $x$  per copy. The cost to the agency of each newspaper is Rs. $y$ . The agency pays a fixed cost for storage, delivery, and so on of Rs.100 per Sunday. The newspaper agency wants to calculate the profit which it obtains only on Sundays. Can you please help them out by writing a program to compute the profit if  $w$ ,  $x$ , and  $y$  are given?

### **Answer**

```
// You are using GCC
#include<iostream>
using namespace std;
int main()
{
    int tn,sn,cn,tamt,in,profit;
```

```

cin>>tn>>sn>>cn;
tamt=tn*sn;
in=(tn*cn)+100;
profit=tamt-in;

cout<<profit;

return 0;
}

```

**Status :** Correct

**Marks :** 10/10

## 18. Problem Statement :

Four musketeers

Dhoni joined the group of 3 Musketeers and now their group is called four Musketeers. Meanwhile, Dhoni also moved to a new house in the same locality nearby to the other three. Currently, the houses of Sachin, Dravid and Ganguly are located in the shape of a triangle. When the three musketeers asked Dhoni about the location of his house, he said that his house is equidistant from the houses of the other 3. Can you please help them find out the location of the house? Given the 3 locations  $\{(a_1, b_1), (a_2, b_2) \text{ and } (a_3, b_3)\}$  of a triangle, write a program to determine the point which is equidistant from all the 3 points.

### Answer

```

// You are using GCC
#include<iostream>
using namespace std;
int main()
{
    float a1,b1,a2,b2,a3,b3,a,b;
    cin>>a1>>b1>>a2>>b2>>a3>>b3;
    a=(a1+a2+a3)/3;
    b=(b1+b2+b3)/3;

    cout<<a<<endl;
    cout<<b<<endl;
}

```

```
    return 0;
}
```

**Status :** Correct

**Marks :** 10/10

## 19. Problem Statement :

### The misers discount

Mrs.Bhulbhul is a miser to the core. She saves money even on petite things. One day she heard a discount offer announced in a mall. She wants to purchase a lot of items to save her money. The discount is given only when at least two items are bought. Since each item has different discount prices, she finds it difficult to check the amount she has saved. So she approaches you to device an automated discount calculator to make her easy while billing.

### Answer

```
// You are using GCC
#include<iostream>
using namespace std;
int main()
{
    float it1,it2,dis,sum,disbal,ams;
    cin>>it1>>it2>>dis;

    sum=it1+it2;
    ams=(dis/100)*sum;
    disbal=sum-ams;

    cout<<sum<<endl;
    cout<<disbal<<endl;
    cout<<ams<<endl;

    return 0;
}
```

**Status :** Correct

**Marks :** 10/10



## 20. Problem Statement :

### Area Calculation

Sheela has three things in her bag. She wants to compute the area of 3 things but 3 things are in different shapes. The three things are a square shape, rectangular shape, and circular shape respectively. Write a program to help Sheela to calculate the area of different shapes.

### **Answer**

```
// You are using GCC
#include<iostream>
#include<iomanip>
using namespace std;

int main()
{
    int a,b,c,sq,re;
    float d,cir;
    cin>>a>>b>>c>>d;

    sq=a*a;
    re=b*c;
    cir=3.14*d*d;

    cout<<sq<<endl;
    cout<<re<<endl;
    cout<<fixed<<setprecision(2);
    cout<<cir<<endl;

    return 0;
}
```

**Status :** Correct

**Marks :** 10/10