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Subject

programming fundamental  
(2 Labs)

①

Q1: Read A, B and C representing the three sides of a triangle write a program to find out its area the formula is given below.

$$\text{Area} = \sqrt{s(s-A)(s-B)(s-C)}$$

$$\text{where } s = \frac{A+B+C}{2}$$

Sol

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

```
float Find area (float a, float b, float c)
```

// length of sides must be positive

// and sum of any two sides

// must be smaller than third side

```
if (a < 0 || b < 0 || c < 0 ||
```

```
    (a + b <= c) || (a + c <= b) ||
```

```
    (b + c <= a))
```

```
{
```

```
    cout << "NOT a valid triangle";
    exit(0);
```

```
}
```

```
float s = (a + b + c) / 2;
```

```
return sqrt(s * (s - a) * (s - b) * (s - c));
```

(2)

```
(5 - b) * (5 - c);
```

```
}
```

```
// Driver code
```

```
int main()
```

```
{
```

```
float a = 3.0;
```

```
float b = 4.0;
```

```
float c = 5.0;
```

```
cout << "Area is " << findArea(a, b, c);
```

```
return 0;
```

```
}
```

Q2:

Write a C++ program to get marks obtained by a student in percentage  $P$  and then find the division according to below rules.

(1) IF  $P$  is above or equal to 60 then display — 1<sup>st</sup> Division

(2) IF  $P$  is between 50 and 59 then display — 2<sup>nd</sup> Division

(3) IF  $P$  is between 40 and 49 then display — 3<sup>rd</sup> Division

(3)

Q) if P is less than 40 then display — Fail.

Sol:

```
#include <iostream>
using namespace std;

int main()
{
    int sub1, sub2, sub3, sub4, sub5,
        percentage;
    cout << "Enter marks of Five subjects:
    ";
    cin >> sub1 >> sub2 >> sub3 >> sub4 >> sub5 >>
        percentage = (sub1 + sub2 + sub3 + sub4
        + sub5) / 5;
    if (percentage >= 60)
        cout << "1st division";
    else if (percentage >= 50)
        cout << "2nd division";
    else if (percentage >= 40)
        cout << "3rd division";
    else
        cout << "Fail";
    return 0;
}
```

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Q3: Write a C++ program to ~~input~~  
Find the sum of following  
series?

$$2 + 4 + 6 + 8 + 10.$$

Solution

```
#include  
void main ()  
{  
    clrscr();  
    int i, n;  
    int sum_of_series = 0;  
    printf("In C program to print sum of  
    the series 2 + 4 + 6 + 8 + 10 = |n|n");  
    printf("Enter an even number n:  
    ");  
    scanf("%d", &n);  
    for (i = 1; i <= n; i++)  
    {  
        i = i + 1;  
        if (n % i == 0)
```

(5)

```
printf ("%d + ", i);
```

```
else
```

```
printf ("%d", i);
```

```
sum - of series = sum - of - series + i
```

```
}
```

```
printf ("= %d", sum of series);
```

```
// getch();
```

```
}
```

---

Q4: write a C++ programme to convert  
5 feet to the equivalent number  
of (a) inches (b) yards where 1 foot = 12  
inches and 1 yard = 3 feet.

Solution

```
#include <stdio.h>
```

```
main()
```

```
// Function to perform conversion  
double conversion (int centi) {
```

5B

```
double inch = 0.3937 * centi;
```

```
double Feet = 0.3048 * centi;
```

```
printf ("Inches is : %.2F\n", inch);
```

```
printf ("Feet is : %.2F", Feet);
```

```
return 0;
```

```
}
```

// Driver code

```
int main() {
```

```
int centai = 10;
```

```
conversion (centai);
```

```
return 0;
```

```
}
```

(6)

Q5: write a C++ program to input Hours worked and hour rate of an employee calculate and display the Gross-pay, Tax and net-pay where

Gross pay = Hour worked Hour-rate

Tax = 10% of Gross-pay

Net-Pay = Gross pay - Tax

Sol: - #include <stdio.h>  
#include <iostream>  
main()  
{

float bs, gs, da, hra;

cout << "Enter basic salary/t";

cin >> bs;



if (bs < 1500)

{  
hra = bs \* 10 / 100;

da = bs \* 90 / 100;

}

else

hra = 500;

da = bs \* 98 / 100;

}  
gs = bs + hra + da;

cout << "\n gross salary = \n, gs;

system("pause");

}