

1. Write a C program to check whether a number is divisible by 5 and 11 or not.

```
Output
Enter any number: 55
Number is divisible by 5 and 11
```

2. Write a program to find the number of and sum of all integers greater than 100 and less than 200 those are divisible by 7

3. Write a C program to check whether a number is negative, positive or zero.

```
Output
Enter any number: 10
Number is POSITIVE
```

4. Write a C program to check whether a character is alphabet or not.

```
Output
Enter any character: b
Character is an ALPHABET.
```

5. Write a C program to input any alphabet and check whether it is vowel or consonant.

```
Output
Enter any character: a
'a' is Vowel.
```

6. Write a C program to input any character and check whether it is alphabet, digit or special character.

#### Output

```
Enter any character: a
'a' is alphabet.
```

7. Write a C program to input week number and print week day.

#### Output

```
Enter week number (1-7): 1
Monday
```

8. Write a C program to input month number and print number of days in that month.

#### Output

```
Enter month number (1-12): 12
31 days
```

9. Write a C program to input angles of a triangle and check whether triangle is valid or not.

#### Output

```
Enter three angles of triangle:
30
60
90
Triangle is valid.
```

10. Write a C program to input basic salary of an employee and calculate its Gross salary according to following: (HRA=Home Rent Allowance, PBA= Phone Bill Allowance)
- Basic Salary  $\leq$  10000 : HRA = 20%, PBA = 80%
- Basic Salary  $\leq$  20000 : HRA = 25%, PBA = 90%
- Basic Salary  $>$  20000 : HRA = 30%, PBA = 95%

```
Output
Enter basic salary of an employee: 22000
GROSS SALARY OF EMPLOYEE = 49500.00
```

### **Problem-11**

Write a C program to accept a coordinate point in a XY coordinate system and determine in which quadrant the coordinate point lies.

<b>Test Data :</b>	<b><i>Expected Output :</i></b>
7 9	The coordinate point (7,9) lies in the First quadrant.
-6 8	The coordinate point (-6,8) lies in the Second quadrant.

### **Problem-12**

Write a C program to check whether a triangle is Equilateral, Isosceles or Scalene.

<b>Test Data :</b>	<b><i>Expected Output :</i></b>
5 5 6	This is an isosceles triangle
7 7 7	This is an equilateral triangle

### **Problem-13**

Write a program in C to calculate and print the Electricity bill of a given customer. The customer id., name and unit consumed by the user should be taken from the keyboard and display the total amount to pay to the customer. The charges are as follow:

<b>Unit :</b>	<b><i>Charge Per Unit</i></b>
First 200 units	4.5 TK
For the next 100 units	5.5 TK
For the next 200 units	6.5 TK
Beyond 500 units	10.5 TK

All users are charged a minimum of TK 100 as meter charge. If the total amount is more than 400TK, then an additional surcharge of 15% of total amount is charged.

### **Problem-14**

Write a C program to take a character as input and Check whether that character is an alphabet, digit or special character.

```
Input a character: R
This is an alphabet.
```

```
Input a character: !
This is a special character.
```

### **Problem-15**

Write a C Program to calculate Profit or Loss based on buying price and selling price

Output

```
Enter cost price: 1000
Enter selling price: 1500
Profit = 500
```

```
Enter cost price: 89
Enter selling price: 55
Loss = 34
```

### **Problem-16**

Write a C program to check whether a year is leap year or not.

```
1995
1995 is not a leap year
```

```
2000
2000 is a leap year
```

## **Problem-17**

Write a C program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer, calculate percentage and grade according to given conditions:

If percentage  $\geq 90\%$  : Grade A

If percentage  $\geq 80\%$  : Grade B

If percentage  $\geq 70\%$  : Grade C

If percentage  $\geq 60\%$  : Grade D

If percentage  $\geq 40\%$  : Grade E

If percentage  $< 40\%$  : Grade F

```
Output
Enter five subjects marks: 95
95
97
98
90
Percentage = 95.00
Grade A
```

## **Problem-18**

An electric power distribution company charges its domestic consumers as follows:

Consumption Units Rate of Charge

0 – 200 Rs. 0.50 per unit

201 – 400 Rs. 100 plus Rs. 0.65 per unit excess of 200

401 – 600 Rs. 230 plus Rs. 0.80 per unit excess of 400

601 and above Rs. 390 plus Rs. 1.00 per unit excess of 600

```

Enter CUSTOMER NO. and UNITS consumed 101 150
Customer No:101 Charges = 75.00
Enter CUSTOMER NO. and UNITS consumed 202 225
Customer No:202 Charges = 116.25
Enter CUSTOMER NO. and UNITS consumed 303 375
Customer No:303 Charges = 213.75
Enter CUSTOMER NO. and UNITS consumed 404 520
Customer No:404 Charges = 326.00
Enter CUSTOMER NO. and UNITS consumed 505 625
Customer No:505 Charges = 415.00

```

## **Practice Problem-19**

Consider the way of grading student performance in IUBAT:

First Term = 20%, Mid Term = 20%, Final = 35%, Quiz = 5%, Assignment = 15%, Attendance = 5%

(All the exam marks are taken out of 100)

Now write a C program that will take “Student Id”, all of the “Exam marks” of that student as input and display the student’s Grade based on the following rules:

Average score  $\geq 90$  then grade=A  
 Average score  $\geq 85$  and  $< 90$  then grade=B+  
 Average score  $\geq 80$  and  $< 85$  then grade=B  
 Average score  $\geq 75$  and  $< 80$  then grade=C+  
 Average score  $\geq 70$  and  $< 75$  then grade=C  
 Average score  $\leq 70$  then grade=F

Sample Input	Sample Output
Student_ID: 514 Marks = 70 85 78 90 95 65	Overall Marks = 80.3 Grade = C+