CTS Coding Questions with Answers

July 20, 2019

CTS Programming Questions with Answers

CTS Programming Test Questions are not like a general Coding Round Questions with Solutions it is all together different from C programming. We have analysed over 100+ CTS Programming Questions. Below you will find CTS Programming Round Questions, CTS Coding Questions that are asked constantly in CTS Placement test. The languages that you can use in the test are –

* C
* C++
* Java
* Python
* Perl

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Important Note

**For 2020 Passouts :**

* No Of Questions:- 1 Question
* Time - 30 mins (Some websites say 20 mins, which is incorrect)

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CTS Coding Questions marking Scheme

There will be total of 6 test cases, out of which results of 3 will be shown to you and 3 will be hidden. Test cases are basically compiler generated input which will check if your output is coming as expected. **Total marks for coding section are 30 marks**.

| **Coding Marks** | **Marks** | **Type** |
| --- | --- | --- |
| 0 Test Case | 0 marks | NA |
| 1 Test Case | 5 marks | Shown |
| 2 Test Case | 10 marks | Shown |
| 3 Test Case | 15 marks | Shown |
| 4 Test Case | 20 marks | Hidden |
| 5 Test Case | 25 marks | Hidden |
| 6 Test Case | 30 marks | Hidden |

or

Free Materials

1. Checking if a given year is leap year or not

**Explanation:**

To check whether a year is leap or not

**Step 1:**

* We first divide the year by 4.
* If it is not divisible by 4 then it is not a leap year.
* If it is divisible by 4 leaving remainder 0

**Step 2:**

* We divide the year by 100
* **If it is not divisible by 100 then it is a leap year.**
* If it is divisible by 100 leaving remainder 0

**Step 3:**

* We divide the year by 400
* If it is not divisible by 400 then it is a leap year.
* If it is divisible by 400 leaving remainder 0

**Then it is a leap year**

**(asked in CTS NQT June 16, 2019 exam)**

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#include<stdio.h>  
int leapprog(int year)  
{  
//checking divisibility by 4  
    if(year%4 == 0)  
    {  
//checking divisibility by 100  
        if( year%100 == 0)  
        {  
//checking divisibility by 400  
            if ( year%400 == 0)  
                printf("%d, the year entered happens to be a leap year", year);  
            else  
                printf("%d is surely not a leap year", year);  
        }  
        else  
            printf("%d, the year entered happens to be a leap year", year );  
    }  
    else  
        printf("%d is surely not a leap year", year);  
       return 0;  
}  
int main()  
{  
    int input\_year, val;  
    printf("Enter the year that you want to check"); //enter the year to check  
    scanf("%d",&input\_year);  
    val = leapprog(input\_year);      
return 0;  
}

**Prime Numbers with a Twist**

Ques. Write a code to check whether no is prime or not. Condition use function check() to find whether entered no is positive or negative ,if negative then enter the no, And if yes pas no as a parameter to prime() and check whether no is prime or not?

* **Whether the number is positive or not, if it is negative then print the message “please enter the positive number”**
* **It is positive then call the function prime and check whether the take positive number is prime or not.**

**(asked in CTS NQT June 16, 2019 exam)**

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#include<stdio.h>  
void prime(int n)  
{  
int c=0;  
    for(int i=2;i<n;i++)  
    {  
        if(n%i==0)  
        c = c+1;  
    }  
    if(c>=1)  
        printf("%d is not a prime number",n);  
    else  
        printf("%d is a prime number",n);  
}  
void main()  
{  
int n;  
printf("Enter no : "); //enter the number  
scanf("%d",&n);  
if(n<0)  
    {  
    printf("Please enter a positive integer");  
    }  
else  
    prime(n);  
}

**Number Series with a Twist – 1**

Find the 15th term of the series?

0,0,7,6,14,12,21,18, 28

**Explanation :**In this series the odd term is increment of 7 {0, 7, 14, 21, 28, 35 – – – – – – }

                        And even term is a increment of 6 {0, 6, 12, 18, 24, 30 – – – – – – }

**(asked in CTS NQT Dec, 2018 exam Slot 1)**

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#include<stdio.h>  
int main()  
{  
   int i, n, a=0, b=0;  
   printf("enter number : ");  
   scanf("%d",&n);  
   for(i=1;i<=n;i++)  
 {  
      if(i%2!=0)  
 {  
           a = a + 7;  
 }  
       else  
      {      
           b = b + 6;  
 }  
 }  
     if(n%2!=0)  
 {  
           printf("%d term of series is %d\t",n,a-7);  
 }  
      else  
   {      
 printf("%d term of series is %d\t",n,b-6);  
 }  
return 0;  
 }

**Number Series with a Twist 2**

[Link to this Question](https://prepinsta.com/this-series-is-a-mixture-of-2-series-all-the-odd-terms-in-this-series-form-a-geometric-series-and-all-the-even-terms-form-yet-another-geometric-series/)

Consider the following series: 1, 1, 2, 3, 4, 9, 8, 27, 16, 81, 32, 243, 64, 729, 128, 2187 …

This series is a mixture of 2 series – all the odd terms in this series form a geometric series and all the even terms form yet another geometric series. Write a program to find the Nth term in the series.

The value N in a positive integer that should be read from STDIN. The Nth term that is calculated by the program should be written to STDOUT. Other than value of n th term,no other character / string or message should be written to STDOUT. For example , if N=16, the 16th term in the series is 2187, so only value 2187 should be printed to STDOUT.

You can assume that N will not exceed 30.

**(asked in CTS NQT September 2, 2018 Slot 2)**

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#include<stdio.h>  
int main()  
{  
   int i, n, a=1, b=1;  
   printf("enter number : ");  
   scanf("%d",&n);  
   for(i=1;i<=n;i++)  
   {  
       if(i%2!=0)  
       {  
           a = a \* 2;  
       }  
       else  
       {      
            b = b \* 3;  
       }  
   }  
    if(n%2!=0)  
       {  
           printf("\n%d term of series is %d\t",n,a/2);  
       }  
       else  
       {      
           printf("\n%d term of series is %d\t",n,b/3);  
       }  
return 0;  
}

**Number Series with a Twist 3**

[Link to this Question –](https://prepinsta.com/0021426384105126147168-this-series-is-a-mixture-of-2-series-all-the-odd-terms-in-this-series-form-even-numbers-in-ascending-order-and-every-even-terms-is-derived-from-the-previous/)

Consider the below series :

0, 0, 2, 1, 4, 2, 6, 3, 8, 4, 10, 5, 12, 6, 14, 7, 16, 8

This series is a mixture of 2 series all the odd terms in this series form even numbers in ascending order and every even terms is derived from the previous  term using the formula (x/2)

Write a program to find the nth term in this series.

The value n in a positive integer that should be read from STDIN the nth term that is calculated by the program should be written to STDOUT. Other than the value of the nth term no other characters /strings or message should be written to STDOUT.

For example if n=10,the 10 th term in the series is to be derived from the 9th term in the series. The 9th term is 8 so the 10th term is (8/2)=4. Only the value 4 should be printed to STDOUT.

You can assume that the n will not exceed 20,000.

**(asked in CTS NQT September 2, 2018 Slot 4)**

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#include<stdio.h>  
int main()  
{  
 int i, n, a=0, b=0;  
 printf("enter number : ");  
 scanf("%d",&n);  
 for(i=1;i<=n;i++)  
 {  
 if(i%2!=0)  
 {  
 if(i>1)  
 a = a + 2;  
 }  
 else  
 {  
 b = a/2;  
 }  
 }  
 if(n%2!=0)  
 {  
 printf("%d",a);  
 }  
 else  
 {   
 printf("%d",b);  
 }  
}

or

#include<stdio.h>  
int main()  
{  
   int i, n, a=0, b=0;  
   printf("enter number : ");  
   scanf("%d",&n);  
   for(i=1;i<=n;i++)  
   {  
       if(i%2!=0)  
       {  
           a = a + 2;  
       }  
       else  
       {  
            b = b + 1;  
       }  
   }  
    if(n%2!=0)  
       {  
           printf("%d",a-2);  
       }  
       else  
       {      
           printf("%d",b-1);  
       }  
}

**String with a Twist**

[Link to this Questions](https://prepinsta.com/tcs-coding-1-the-program-will-recieve-3-english-words-inputs-from-stdin-these-three-words-will-be-read-one-at-a-time-in-three-separate-line/)

1. The program will recieve 3 English words inputs from STDIN

1. These three words will be read one at a time, in three separate line
2. The first word should be changed like all vowels should be replaced by %
3. The second word should be changed like all consonants should be replaced by #
4. The third word should be changed like all char should be converted to upper case
5. Then concatenate the three words and print them

Other than these concatenated word, no other characters/string should or message should be written to STDOUT

For example if you print how are you then output should be h%wa#eYOU.

You can assume that input of each word will not exceed more than 5 chars

**(asked in CTS NQT September 3, 2018 Slot 1)**

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#include   
#include   
int main()  
{  
  char a[10], b[10], c[10];  
  int i,j;  
  int x, y, z;  
  gets(a);  
  gets(b);  
  gets(c);  
  x = strlen(a);  
  y = strlen(b);  
  for(i=0;i<x;i++)  
  {  
      if(a[i]=='a'||a[i]=='e'||a[i]=='i'||a[i]=='o'||a[i]=='u')  
      {  
          a[i] = '%';  
      }  
  }  
  for(j=0;j<y;j++)  
  {  
      if(b[j]=='b'||b[j]=='c'||b[j]=='d'||b[j]=='f'||b[j]=='g'||b[j]=='h'||b[j]=='j'||b[j]=='k'||b[j]=='l'||  
 b[j]=='m'||b[j]=='n'||b[j]=='p'||b[j]=='q'||b[j]=='r'||b[j]=='s'||b[j]=='t'||b[j]=='v'||b[j]=='w'||  
b[j]=='x'||b[j]=='y'||b[j]=='z')  
      {  
          b[j] = '#';  
      }  
  }  
  z=0;  
   while (c[z] != '\0') {  
      if (c[z] >= 'a' && c[z] <= 'z')  
       {  
         c[z] = c[z] - 32;  
      }  
      z++;  
   }  
   printf("%s %s %s",&a,&b,&c);  
}

**Addition of two numbers a Twist**

1. Using a method, pass two variables and find the sum of two numbers.

Test case:

Number 1 – 20

Number 2 – 20.38

Sum = 40.38

There were a total of 4 test cases. Once you compile 3 of them will be shown to you and 1 will be a hidden one. You have to display error message if numbers are not numeric.

**(asked in CTS NQT June 16, 2019 Slot 3)**

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#include<stdio.h>  
addition(int x, float y)  
{  
    float ans;  
    ans = (float)x + y;  
    printf("Answer : %.2f",ans);  
}  
int main()  
{  
   int a;  
   float b;  
   printf("enter first number : ");  
   scanf("%d",&a);  
   printf("enter second number : ");  
   scanf("%f",&b);  
   addition(a, b);  
}

**Consider the below series :**

0, 0, 2, 1, 4, 2, 6, 3, 8, 4, 10, 5, 12, 6, 14, 7, 16, 8

This series is a mixture of 2 series all the odd terms in this series form even numbers in ascending order and every even terms is derived from the previous  term using the formula (x/2)

Write a program to find the nth term in this series.

The value n in a positive integer that should be read from STDIN the nth term that is calculated by the program should be written to STDOUT. Other than the value of the nth term no other characters /strings or message should be written to STDOUT.

For example if n=10,the 10 th term in the series is to be derived from the 9th term in the series. The 9th term is 8 so the 10th term is (8/2)=4. Only the value 4 should be printed to STDOUT.

You can assume that the n will not exceed 20,000.

[**C**](https://prepinsta.com/tcs-coding-questions/)

**Code:**  
  
#include<stdio.h>  
  
int main() {  
//code  
int n;  
scanf(“%d”, &n);  
if(n % 2 == 1)  
{  
int a = 1;  
int r = 2;  
int term\_in\_series = (n+1)/2;  
int res = 2 \* (term\_in\_series – 1);  
printf(“%d “, res);  
}  
else  
{  
int a = 1;  
int r = 3;  
int term\_in\_series = n/2;  
  
int res = term\_in\_series – 1;  
printf(“%d “, res);  
}  
  
return 0;  
}

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**Question 0**

Find the nth term of the series.

1,1,2,3,4,9,8,27,16,81,32,243,….

#include<stdio.h>  
  
#include<math.h>  
  
int three(n)  
  
{  
  
int x,i;  
  
for(i=0;i<100;i++)  
  
{  
  
x=pow(3,i);  
  
if(i==n)  
  
printf("%d",x);  
  
}  
  
}  
  
  
  
  
int two(n)  
  
{  
  
int x,i;  
  
for(i=0;i<100;i++)  
  
{  
  
x=pow(2,i);  
  
if(i==n)  
  
printf("%d",x);  
  
}  
  
}  
  
  
  
  
int main()  
  
{  
  
int n;  
  
scanf("%d",&n);  
  
if(n%2==0)  
  
three(n/2);  
  
else   
  
two(n/2+1);  
  
}

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