



NATIONAL QUALIFIER TEST

TCS NQT CODING QUESTIONS

A photograph of a modern, multi-story office building with a glass facade. Overlaid on the right side of the building is the text 'TCS GG7 GURUGRAM' in large, white, sans-serif capital letters.

**TCS GG7
GURUGRAM**



Problem Statement

Particulate Matters Are The Biggest Contributors To Delhi Pollution. The Main Reason Behind The Increase In The Concentration Of PMs Include Vehicle Emission By Applying Odd Even Concept For All Types Of Vehicles. The Vehicles With The Odd Last Digit In The Registration Number Will Be Allowed On Roads On Odd Dates And Those With Even Last Digit Will On Even Dates.

Given An Integer Array A[], Contains The Last Digit Of The Registration Number Of N Vehicles Traveling On Date D(A Positive Integer). The Task Is To Calculate The Total Fine Collected By The Traffic Police Department From The Vehicles Violating The Rules.

Note* : For Violating The Rule, Vehicles Would Be Fined As X Rs.

Example Input :- 4 -> Value Of N {5,2,3,7} -> A[], Elements A[0] To A[N-1], During Input Each Element Is Separated By A New Line 12 -> Value Of D, I.E. Date 200 -> Value Of X I.E. Fine

Output:- 600 -> Total Fine Collected

Explanation :- Date D=12 Means , Only An Even Number Of Vehicles Are Allowed. Find Will Be Collected From 5,3 And 7 With An Amount Of 200 Each. Hence, The Output = 600.

```
1 #include <stdio.h>
2 int main() {
3     int n;
4     scanf("%d", &n);
5     int arr[n];
6     for (int i = 0; i < n; i++)
7         printf("%d", &arr[i]);
8     int d, x;
9     scanf("%d %d", &d, &x);
10    int countEven = 0, countOdd = 0;
11    for (int i = 0; i < n; i++) {
12        if (arr[i] % 2 == 0)
13            countEven++;
14        else
15            countOdd++;
16    }
17    if (d % 2 != 0) {
18        if (countEven == 0)
19            printf("0\n");
20        else
21            printf("%d\n", countEven);
22    } else {
23        if (countOdd == 0)
24            printf("0\n");
25        else
26            printf("%d\n", countOdd);
27    }
28    return 0;
29 }
```





Problem Statement

An Intelligence Agency Has Received Reports About Some Threats. The Reports Consist Of Numbers In A Mysterious Method. There Is A Number "N" And Another Number "R". Those Numbers Are Studied Thoroughly And It Is Concluded That All Digits Of The Number 'N' Are Summed Up And This Action Is Performed 'R' Number Of Times. The Resultant Is Also A Single Digit That Is Yet To Be Deciphered. The Task Here Is To Find The Single-Digit Sum Of The Given Number 'N' By Repeating The Action 'R' Number Of Times.

If The Value Of 'R' Is 0, Print The Output As '0'.

Example Input :- 99 -> Value Of N,

3 -> Value Of R

Output:- 9 -> Possible Ways To Fill The Cistern.

Explanation :- Here, The Number N=99

1. Sum Of The Digits N: $9+9 = 18$
2. Repeat Step 2 'R' Times I.E. 3 Times $(9+9)+(9+9)+(9+9) = 18+18+18 = 54$
3. Add Digits Of 54 As We Need A Single Digit $5+4$

Hence , The Output Is 9.



```
1 #include<stdio.h>
2 #include<string.h>
3 int main() {
4     char s[100];
5     scanf("%s", s);
6     int n, sum = 0;
7     scanf("%d", &n);
8     for (int i = 0; i < strlen(s); i++) { sum += (s[i] - '0'); } sum *= n; sprintf(s, "%d", sum);
9     sum = 0;
10    for (int i = 0; i < strlen(s); i++) {
11        sum += (s[i] - '0');
12    }
13    sprintf(s, "%d", sum);
14 }
15 printf("%s", s);
16 return 0;
17 }
```



Problem Statement

An International Round Table Conference Will Be Held In India. Presidents From All Over The World Representing Their Respective Countries Will Be Attending The Conference. The Task Is To Find The Possible Number Of Ways(P) To Make The N Members Sit Around The Circular Table Such That.

The President And Prime Minister Of India Will Always Sit Next To Each Other.

Example

Input :- 4 -> Value Of N(No. Of Members)

Output:- 9 -> 12 -> Possible Ways Of Seating The Members

Explanation :- 2 Members Should Always Be Next To Each Other.

So, 2 Members Can Be In $2!$ Ways

Rest Of The Members Can Be Arranged In $(4-1)!$ Ways.(1 Is Subtracted Because The Previously Selected Two Members Will Be Considered As Single Members Now).

So Total Possible Ways 4 Members Can Be Seated Around The Circular Table $2*6= 12$.

Hence, Output Is 12.

```
1 #include<stdio.h>
2 int main() {
3     int n;
4     scanf("%d", &n);
5     int fact[n + 1];
6     fact[0] = 1;
7     for (int i = 1; i <= n; i++) {
8         fact[i] = fact[i - 1] * i;
9     }
10    printf("%d\n", fact[n - 1] * 2);
11    return 0;
12 }
```





Problem Statement

A Furnishing Company Is Manufacturing A New Collection Of Curtains. The Curtains Are Of Two Colors Aqua(A) And Black (B). The Curtains Color Is Represented As A String(Str) Consisting Of A's And B's Of Length N. Then, They Are Packed (Substring) Into L Number Of Curtains In Each Box. The Box With The Maximum Number Of 'aqua' (A) Color Curtains Is Labeled. The Task Here Is To Find The Number Of 'aqua' Color Curtains In The Labeled Box.

Note*

If 'L' Is Not A Multiple Of N, The Remaining Number Of Curtains Should Be Considered As A Substring Too. In Simple Words, After Dividing The Curtains In Sets Of 'L', Any Curtains Left Will Be Another Set(Refer Example 1)

Example

Input :- bbbaaababa -> Value Of Str, 3 -> Value Of L

Output:- 3 -> Maximum Number Of A's

Explanation :- From The Input Given Above.

Dividing The String Into Sets Of 3 Characters Each

Set 1: {B,B,B}

Set 2: {A,A,A}

Set 3: {B,A,B}

Set 4: {A} -> Leftover Characters Also As Taken As Another Set

Among All The Sets, Set 2 Has More Number Of A's. The Number Of A's In Set 2 Is 3. Hence, The Output Is 3.

```
2 #include<string.h>
3
4 int main() {
5     char str[100];
6     scanf("%s", str);
7     int n;
8     scanf("%d", &n);
9     int max = 0, count = 0;
10    for (int i = 0; i < strlen(str); i++) { if (i % n == 0) { if (count > max)
11        max = count;
12        count = 0;
13    }
14    if (str[i] == 'a')
15        count++;
16}
17 if (count > max)
18    max = count;
19 printf("%d\n", max);
20 return 0;
21 }
```



Problem Statement

A Supermarket Maintains A Pricing Format For All Its Products. A Value N Is Printed On Each Product. When The Scanner Reads The Value N On The Item, The Product Of All The Digits In The Value N Is The Price Of The Item. The Task Here Is To Design The Software Such That Given The Code Of Any Item N The Product (Multiplication) Of All The Digits Of Value Should Be Computed(Price).

Example

Input :- 5244 -> value of n

Output:- 160 -> Price

Explanation :- From The Input Above

Product Of The Digits 5,2,4,4

$$5*2*4*4 = 160$$

Hence, Output Is 160.

```
1 #include<stdio.h>
2 #include<limits.h>
3
4 int main() {
5     char s[100];
6     scanf("%s", s);
7     int p = 1;
8     for (int i = 0; i < strlen(s); i++) {
9         p *= (s[i] - '0');
10    }
11    printf("%d", p);
12    return 0;
13 }
```





Problem Statement

Given An Integer Array Arr Of Size N The Task Is To Find The Count Of Elements Whose Value Is Greater Than All Of Its Prior Elements.

Note : 1st Element Of The Array Should Be Considered In The Count Of The Result.

For Example,

Arr[]={7,4,8,2,9}

As 7 Is The First Element, It Will Consider In The Result.

8 And 9 Are Also The Elements That Are Greater Than All Of Its Previous Elements.

Since Total Of 3 Elements Is Present In The Array That Meets The Condition.

Hence The Output = 3.

Example Input

5 -> Value Of N, Represents Size Of Arr

7-> Value Of Arr[0]

4 -> Value Of Arr[1]

8-> Value Of Arr[2]

2-> Value Of Arr[3]

9-> Value Of Arr[4]

Output :3

```
1 #include<stdio.h>
2 #include<limits.h>
3
4 int main() {
5     int n, c = 0, a, m = INT_MIN;
6     scanf("%d", &n);
7     while (n--) {
8         scanf("%d", &a);
9         if (a >= m) {
10             m = a;
11             c++;
12         }
13     }
14     printf("%d", c);
15     return 0;
16 }
```





Problem Statement

Airport Security Officials Have Confiscated Several Item Of The Passengers At The Security Check Point. All The Items Have Been Dumped Into A Huge Box (Array). Each Item Possesses A Certain Amount Of Risk[0,1,2]. Here, The Risk Severity Of The Items Represent An Array[] Of N Number Of Integer Values. The Task Here Is To Sort The Items Based On Their Levels Of Risk In The Array. The Risk Values Range From 0 To 2.

Example

Input :

7 -> Value Of N

[1,0,2,0,1,0,2]-> Element Of Arr[0] To Arr[N-1],
While Input Each Element Is Separated By New
Line.

Output :

0 0 0 1 1 2 2 -> Element After Sorting Based
On Risk Severity



```
int main() {
    int n;
    scanf("%d", &n);
    int a[n];
    for (int i = 0; i < n; i++) {
        scanf("%d", &a[i]);
    }
    sortArray(a, n);
    for (int i = 0; i < n; i++) {
        printf("%d ", a[i]);
    }
    return 0;
}

#include<stdio.h>
void swap(int* a, int* b) {
    int temp = *a;
    *a = *b;
    *b = temp;
}
void sortArray(int arr[], int size) {
    int low = 0, mid = 0, high = size - 1;
    while (mid <= high) {
        if (arr[mid] == 0) {
            swap(&arr[low], &arr[mid]);
            low++;
            mid++;
        } else if (arr[mid] == 1) {
            mid++;
        } else {
            swap(&arr[mid], &arr[high]);
            high--;
        }
    }
}
```



Problem Statement

Jack Is Always Excited About Sunday. It Is Favorite Day, When He Gets To Play All Day. And Goes To Cycling With His Friends.

So Every Time When The Months Starts He Counts The Number Of Sundays He Will Get To Enjoy. Considering The Month Can Start With Any Day, Be It Sunday, Monday.... Or So On.

Count The Number Of Sunday Jack Will Get Within N Number Of Days.

Example Input : Mon-> Input String Denoting The Start Of The Month.

13 -> Input Integer Denoting The Number Of Days From The Start Of The Month.

Output : 2 -> Number Of Days Within 13 Days.

Explanation The Month Start With Mon(Monday). So The Upcoming Sunday Will Arrive In Next 6 Days. And Then Next Sunday In Next 7 Days And So On.

Now Total Number Of Days Are 13. It Means 6 Days To First Sunday And Then Remaining 7 Days Will End Up In Another Sunday. Total 2 Sundays May Fall Within 13 Days

```
1 #include<stdio.h>
2 #include<string.h>
3 #define MAX_LENGTH 4
4 int main()
5 {
6     char s[MAX_LENGTH];
7     scanf("%s", s);
8
9     int a, ans = 0;
10    scanf("%d", &a);
11
12    // Map weekdays to their corresponding values
13    char weekdays[][MAX_LENGTH] = {
14        "mon", "tue", "wed", "thu", "fri", "sat", "sun"
15    };
16    int values[] = {6, 5, 4, 3, 2, 1, 0};
17
18    // Find the corresponding value for the input weekday
19    int mapSize = sizeof(weekdays) / sizeof(weekdays[0]);
20    int m = -1;
21    for (int i = 0; i < mapSize; i++) { if (strcmp(s, weekdays[i]) == 0)
22    { m = values[i]; break; } } if (m != -1) {
23        ans = 1 + (a - m) / 7;
24    }
25
26
27    printf("%d", ans);
28
29    return 0;
30 }
```



Question #1: Sweet Seventeen

Given a maximum of four digits to the base 17(10 -> A, 11 -> B, 12 -> C, 16 -> G) as input, output its decimal value.

Input:

23GF

Solution and output:

C++ :

```
#include <iostream>
#include <math.h>
#include <string.h>
using namespace std;
int main(){
    char hex[17];
    long long decimal;
    int i = 0, val, len;
    decimal = 0;
    cin>> hex;
    len = strlen(hex);
    len--;
}
```

Java :

```
import java.util.*;
class Main
{
    public static void main(String[] args) {
        HashMap<Character,Integer> hmap = new HashMap<Character,Integer>();
        hmap.put('A',10);
        hmap.put('B',11);
        hmap.put('C',12);
        hmap.put('D',13);
        hmap.put('E',14);
        hmap.put('F',15);
        hmap.put('G',16);
        hmap.put('a',10);
        hmap.put('b',11);
        hmap.put('c',12);
        hmap.put('d',13);
        hmap.put('e',14);
        hmap.put('f',15);
    }
}
```

```
hmap.put('g',16);
Scanner sin = new Scanner(System.in);

String s = sin.nextLine();
long num=0;
int k=0;

for(int i=s.length()-1;i>=0;i--)
{
    if((s.charAt(i)>='A'&&s.charAt(i)<='Z')| |(s.charAt(i)>='a' &&s.charAt(i)<='z'))
    {
        num = num + hmap.get(s.charAt(i))*(int)Math.pow(17,k++);
    }
    else
    {
        num = num+((s.charAt(i)-'0')*(int)Math.pow(17,k++));
    }
}
System.out.println(num);
}
```

Python :

```
num = str(input())
print(int(num,17))
```

OUTPUT

10980

Question #2: A Sober Walk

Our hoary culture had several great persons since time immemorial and king Vikramaditya's nava ratnas (nine gems) belongs to this ilk. They are named in the following shloka:

Among these, Varahamihira was an astrologer of eminence and his book Brihat Jataak is reckoned as the ultimate authority in astrology. He was once talking with Amarasimha, another gem among the nava ratnas and the author of the Sanskrit thesaurus, Amarakosha. Amarasimha wanted to know the final position of a person, who starts from the origin 0 0 and travels per the following scheme.

- He first turns and travels 10 units of distance
- His second turn is upward for 20 units
- The third turn is to the left for 30 units
- The fourth turn is downward for 40 units
- The fifth turn is to the right(again) for 50 units

... And thus he travels, every time increasing the travel distance by 10 units.

Constraints:

$2 \leq n \leq 1000$

Input:

3

Solution and output:

C++ :

```
#include<iostream>
#include<stdlib.h>
using namespace std;
int main()
{
    int n;
    cin>>n;
    char c = 'R';
    int x = 0, y = 0;
    while(n){
        switch(c){
            case 'R':
                x = abs(x) + 10;
```

```

y = abs(y);
c ='U';
break;
case 'U':
y = y + 20;
c = 'L';
break;
case 'L':
x = -(x + 10);
c = 'D';
break;
case 'D':
y = -(y);
c = 'R';
break;
}
n--;
}
cout<< x<< " " << y;
}

```

Java :

```

import java.util.*;
import java.lang.*;

class Main {
    public static void main (String[] args) {
        Scanner sc = new Scanner(System.in);
        int n=sc.nextInt();
        char c = 'R';
        int x = 0, y = 0;
        while(n>0){
            switch(c){
                case 'R':
                    x = Math.abs(x) + 10;
                    y = Math.abs(y);
                    c ='U';
                    break;
                case 'U':
                    y = y + 20;
                    c = 'L';
                    break;
                case 'L':
                    x = -(x + 10);
                    c = 'D';

```

```

        break;
    case 'D':
        y = -(y);
        c = 'R';
        break;
    }
    n--;
}
System.out.println(x+" "+y);
}
}

```

Python :

```

n = int(input())
c = 'R'
x,y=0,0
for i in range(n):
    if c=='R':
        x = abs(x) + 10;
        y = abs(y);
        c ='U';
    elif c=='U':
        y = y + 20;
        c = 'L';
    elif c=='L':
        x = -(x + 10);
        c = 'D';
    elif c=='D':
        y = -(y);
        c = 'R';
print(x,y)

```

OUTPUT

-20 20

Question #3: Word is the key

One programming language has the following keywords that cannot be used as identifiers:

break, case, continue, default, defer, else, for, func, goto, if, map, range, return, struct, type, var

Write a program to find if the given word is a keyword or not

Input #1:

defer

Output:

defer is a keyword

Input #2:

While

Solution and output:

C++ :

```
#include<iostream>
#include<string.h>
using namespace std;
int main(){
    char str[16][10] = {"break", "case", "continue", "default", "defer", "else", "for",
    "func", "goto", "if", "map", "range", "return", "struct", "type", "var"};
    char input[20];
    int flag = 0;
    cin >> input;
    for(int i = 0; i<16;i++){
        if(strcmp(input,str[i]) == 0){
            flag = 1;
            break;
        }
    }
    if(flag==1){
        cout << input << " is a keyword";
    }
    else{
        cout << input << " is not a keyword";
    }
}
```

```
    }
    return 0;
}
```

Java :

```
import java.util.Scanner;
class Main
{
    public static void main(String args[])
    {

        String str[]={ "break", "case", "continue", "default", "defer", "else", "for", "func", "goto",
        "if", "map", "range", "return", "struct", "type", "var"};
        int flag = 0;
        Scanner sc = new Scanner(System.in);
        String input=sc.nextLine();

        for(int i = 0; i<16;i++){
            if(str[i].equals(input)){
                flag = 1;
                break;
            }
        }

        if(flag==1){
            System.out.println(input+" is a keyword");
        }
        else{
            System.out.println(input+" is not a keyword");
        }
    }
}
```

Python

```
keyword = {"break", "case", "continue", "default", "defer", "else", "for",
"func", "goto", "if", "map", "range", "return", "struct", "type", "var"}

input_var = input()
if input_var in keyword:
    print(input_var+ " is a keyword")
else:
```

```
print(input_var+ " is not a keyword")
```

OUTPUT

while is not a keyword

Question #4:

Problem Statement –

A chocolate factory is packing chocolates into the packets. The chocolate packets here represent an array of N number of integer values. The task is to find the empty packets(0) of chocolate and push it to the end of the conveyor belt(array).

Example 1 :

N=8 and arr = [4,5,0,1,9,0,5,0].

There are 3 empty packets in the given set. These 3 empty packets represented as 0 should be pushed towards the end of the array

Input :

8 – Value of N

[4,5,0,1,9,0,5,0] – Element of arr[0] to arr[N-1], While input each element is separated by newline

Output:

4 5 1 9 5 0 0 0 0

Example 2:

Input:

6 – Value of N.

[6,0,1,8,0,2] – Element of arr[0] to arr[N-1], While input each element is separated by newline

Output:

6 1 8 2 0 0

C++ :

```
#include <bits/stdc++.h>
using namespace std;
int main ()
{
    int n, j = 0;
    cin >> n;
    int a[n] = { 0 };
    for (int i = 0; i < n; i++)
    {
        cin >> a[j];
        if (a[j] != 0)
        {
            j++;
        }
    }
    for (int i = 0; i < n; i++)
    {
        cout << a[i] << " ";
    }
}
```

Java :

```
import java.util.*;
class Main
{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        int arr[]=new int[n];
        for(int i=0;i<n;i++)
            arr[i]=sc.nextInt();
        int count=0;
        for(int i=0;i<n;i++)
            if(arr[i]!=0)
                arr[count++]=arr[i];
        for(int i=count;i<n;i++)
            arr[i]=0;
```

```
for(int i=0;i< n;i++)
    System.out.print(arr[i]+" ");
}
}
```

Python

```
n=int(input())
j=0
L=[0 for i in range(n)]
for i in range(n):
    a=int(input())
    if a!=0:
        L[j]=a
        j+=1
for i in L:
    print(i,end=" ")
```

OUTPUT

```
4 5 1 9 5 0 0 0
```

Question #5:

Problem Statement –

Joseph is learning digital logic subject which will be for his next semester. He usually tries to solve unit assignment problems before the lecture. Today he got one tricky question. The problem statement is “A positive integer has been given as an input. Convert decimal value to binary representation. Toggle all bits of it after the most significant bit including the most significant bit. Print the positive integer value after toggling all bits”.

Constraints-

1<=N<=100

Example 1:

Input :

10 -> Integer

Output :

5 -> result- Integer

Explanation:

Binary representation of 10 is 1010. After toggling the bits(1010), will get 0101 which represents “5”. Hence output will print “5”.

C++ :

```
#include<bits/stdc++.h>
using namespace std;
int main ()
{
    int n;
    cin >> n;
    int k = (1 << (int) floor (log2 (n)) + 1) - 1;
    cout << (n ^ k);
}
```

Java :

```
import java.util.*;
class Main
{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        int no=sc.nextInt();
        String bin="";
        while(no!=0)
        {
            bin=(no&1)+bin;
            no=no>>1;
        }
        bin=bin.replaceAll("1","2");
        bin=bin.replaceAll("0","1");
        bin=bin.replaceAll("2","0");
        int res=Integer.parseInt(bin,2);
        System.out.println(res);
    }
}
```

Python :

```
import math
n=int(input())
k=(1<< int(math.log2(n))+1)-1
print(n^k)
```

OUTPUT

5 -> result- Integer

Question #6:

Jack is always excited about sunday. It is favourite day, when he gets to play all day. And goes to cycling with his friends.

So every time when the months starts he counts the number of sundays he will get to enjoy.

Considering the month can start with any day, be it Sunday, Monday.... Or so on.

Count the number of Sunday jack will get within n number of days.

Example 1:

Input

mon-> input String denoting the start of the month.

13 -> input integer denoting the number of days from the start of the month.

Output :

2 -> number of days within 13 days.

Explanation:

The month start with mon(Monday). So the upcoming sunday will arrive in next 6 days. And then next Sunday in next 7 days and so on.

Now total number of days are 13. It means 6 days to first sunday and then remaining 7 days will end up in another sunday. Total 2 sundays may fall within 13 days.

C++ :

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
    string s; cin>>s;
    int a,ans=0;
    cin>>a;
    unordered_map<string,int> m;
    m["mon"]=6;m["tue"]=5;m["wed"]=4;
    m["thu"]=3;m["fri"]=2;m["sat"]=1;
```

```
m["sun"]=0;
if(a-m[s.substr(0,3)] >=1) ans=1+(a-m[s.substr(0,3)])/7;
cout<< ans;
}
```

Java :

```
import java.util.*;
class Main
{
public static void main(String[] args)
{
    Scanner sc=new Scanner(System.in);
    String str=sc.next();
    int n=sc.nextInt();
    String arr[]={ "mon", "tue", "wed", "thu", "fri", "sat", "sun"};
    int i=0;
    for(i=0;i<arr.length;i++) if(arr[i].equals(str)) break; int res=1; int rem=6-i; n=n-rem; if(n >0)
        res+=n/7;
    System.out.println(res);

}
}
```

Python :

```
def main():
    s = input()
    a = int(input())
    m = {
        "mon": 6, "tue": 5, "wed": 4,
        "thu": 3, "fri": 2, "sat": 1,
        "sun": 0
    }
    ans = 0
    if a - m[s[:3]] >= 1:
        ans = 1 + (a - m[s[:3]]) // 7
    print(ans)
if __name__ == "__main__":
    main()
```

OUTPUT

5 -> result- Integer

Question #7:

Jack is always excited about sunday. It is favourite day, when he gets to play all day. And goes to cycling with his friends.

So every time when the months starts he counts the number of sundays he will get to enjoy. Considering the month can start with any day, be it Sunday, Monday.... Or so on.

Count the number of Sunday jack will get within n number of days.

Example 1:

Input

mon-> input String denoting the start of the month.

13 -> input integer denoting the number of days from the start of the month.

Output :

2 -> number of days within 13 days.

Explanation:

The month start with mon(Monday). So the upcoming sunday will arrive in next 6 days. And then next Sunday in next 7 days and so on.

Now total number of days are 13. It means 6 days to first sunday and then remaining 7 days will end up in another sunday. Total 2 sundays may fall within 13 days.

C++ :

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

```

int main()
{
    string s; cin>>s;
    int a,ans=0;
    cin>>a;
    unordered_map< string,int > m;
    m["mon"]=6;m["tue"]=5;m["wed"]=4;
    m["thu"]=3;m["fri"]=2;m["sat"]=1;
    m["sun"]=0;
    if(a-m[s.substr(0,3)] >=1) ans=1+(a-m[s.substr(0,3)])/7;
    cout<< ans;
}

```

Java :

```

import java.util.*;
class Main
{
public static void main(String[] args)
{
    Scanner sc=new Scanner(System.in);
    String str=sc.next();
    int n=sc.nextInt();
    String arr[]={ "mon", "tue", "wed", "thu", "fri", "sat", "sun"};
    int i=0;
    for(i=0;i< arr.length;i++) if(arr[i].equals(str)) break; int res=1; int rem=6-i; n=n-rem; if(n >0)
        res+=n/7;
    System.out.println(res);
}
}

```

Python :

```

def main():
    s = input()
    a = int(input())
    m = {
        "mon": 6, "tue": 5, "wed": 4,
        "thu": 3, "fri": 2, "sat": 1,
        "sun": 0
    }
    ans = 0
    if a - m[s[:3]] >= 1:
        ans = 1 + (a - m[s[:3]]) // 7

```

```
print(ans)

if __name__ == "__main__":
    main()
```

OUTPUT

2 -> number of days within 13 days.

Question #8:

Airport security officials have confiscated several item of the passengers at the security check point. All the items have been dumped into a huge box (array). Each item possesses a certain amount of risk[0,1,2]. Here, the risk severity of the items represent an array[] of N number of integer values. The task here is to sort the items based on their levels of risk in the array. The risk values range from 0 to 2.

Example :

Input :

7 -> Value of N

[1,0,2,0,1,0,2]-> Element of arr[0] to arr[N-1], while input each element is separated by new line.

Output :

0 0 0 1 1 2 2 -> Element after sorting based on risk severity

Example 2:

input : 10 -> Value of N

[2,1,0,2,1,0,0,1,2,0]-> Element of arr[0] to arr[N-1], while input each element is separated by a new line.

Output :

0 0 0 0 1 1 1 2 2 2 ->Elements after sorting based on risk severity.

Explanation:

In the above example, the input is an array of size N consisting of only 0's, 1's and 2s. The output is a sorted array from 0 to 2 based on risk severity.

C++ :

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int n; cin>>n;
    int a[n];
    for(int i=0;i<n;i++) cin>>a[i];
    int l=0,m=0,h=n-1;
    while(m<=h)
    {
        if(a[m]==0) swap(a[l++],a[m++]);
        else if(a[m]==1) m++;
        else swap(a[m],a[h--]);
    }
    for(int i=0;i<n;i++) cout<< a[i]<<" ";
}
```

Java :

```
import java.util.*;
class Main
{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        int arr[]=new int[n];
        for(int i=0;i<n;i++)
            arr[i]=sc.nextInt();
        int countZero=0,countOne=0,countTwo=0;
        for(int i=0;i<n;i++) { if(arr[i]==0) countZero++; else if(arr[i]==1) countOne++; else if(arr[i]==2) countTwo++; } int j =0; while(countZero >0)
    {
```

```

        arr[j++]=0;
        countZero--;
    }
    while(countOne >0)
    {
        arr[j++]=1;
        countOne--;
    }

    while(countTwo >0)
    {
        arr[j++]=2;
        countTwo--;
    }

    for(int i=0;i < n;i++)
        System.out.print(arr[i]+" ");
    }
}

```

Python :

```

n = int(input())
arr = []
for i in range(n):
    arr.append(int(input()))
for i in sorted(arr):
    print(i, end=" ")

```

OUTPUT

0 0 0 1 1 1 2 2 2

Question #9:

Given an integer array Arr of size N the task is to find the count of elements whose value is greater than all of its prior elements.

Note : 1st element of the array should be considered in the count of the result.

For example,

Arr[] = {7, 4, 8, 2, 9}

As 7 is the first element, it will consider in the result.

8 and 9 are also the elements that are greater than all of its previous elements.

Since total of 3 elements is present in the array that meets the condition.

Hence the output = 3.

Example 1:

Input

5 -> Value of N, represents size of Arr

7-> Value of Arr[0]

4 -> Value of Arr[1]

8-> Value of Arr[2]

2-> Value of Arr[3]

9-> Value of Arr[4]

Output :

3

Example 2:

5 -> Value of N, represents size of Arr

3 -> Value of Arr[0]

4 -> Value of Arr[1]

5 -> Value of Arr[2]

8 -> Value of Arr[3]

9 -> Value of Arr[4]

Output :

5

Constraints

1<=N<=20

1<=Arr[i]<=10000

C++ :

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int n,c=0,a,m=INT_MIN;
    cin>>n;
    while(n--)
    {
        cin>>a;
        if(a>m)
        {
            m=a;
            c++;
        }
    }
    cout << c;
}
```

Java :

```
import java.util.*;
class Main
{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        int arr[]=new int[n];
        for(int i=0;i<n;i++)
            arr[i]=sc.nextInt();
        int max=Integer.MIN_VALUE;

        int count=0;
        for(int i=0;i<n;i++) { if(arr[i]>max)
```

```
{  
    max=arr[i];  
    count++;  
}  
}  
System.out.println(count);  
}  
}
```

Python :

```
import sys  
n=int(input())  
c=0  
m=-sys.maxsize-1  
while n:  
    n-=1  
    a=int(input())  
    if a>m:  
        m=a  
        c+=1  
print(c)
```

OUTPUT

5

Question #10:

A supermarket maintains a pricing format for all its products. A value N is printed on each product. When the scanner reads the value N on the item, the product of all the digits in the value N is the price of the item. The task here is to design the software such that given the code of any item N the product (multiplication) of all the digits of value should be computed(price).

Example 1:

Input :

5244 -> Value of N

Output :

160 -> Price

Explanation:

From the input above

Product of the digits 5,2,4,4

$5*2*4*4 = 160$

Hence, output is 160.

C++ :

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
    string s;
    cin>>s;
    int p=1;
    for(auto i:s)
        p*=(i-'0');
    cout<< p;
}
```

Java :

```
import java.util.*;
class Main
{
```

```
public static void main(String[] args)
{
    Scanner sc=new Scanner(System.in);
    int n=sc.nextInt();
    int res=1;
    while(n>0)
    {
        res=res*(n%10);
        n=n/10;
    }
    System.out.println(res);
}
```

Python :

```
n=input()
p=1
for i in n:
    p*=int(i)
print(p)
```

OUTPUT

160 -> Price



TCS NQT MODEL PAPER 1

NUMERICAL ABILITY

1. Which of the following is the greatest number that will divide 148, 246, and 623, leaving remainders 4, 6, and 11 respectively?

- A) 20 B) 12 C) 6 D) 48

2. If the remainder when $m + n$ is divided by 12 is 8, and the remainder when $m - n$ is divided by 12 is 6, what is the remainder when mn is divided by 6?

- A) 3 B) 4 C) 2 D) 1

3. What number must be added to 2088 to make it a perfect square?

- A) 58 B) 20 C) 28 D) 29

4. A cone and a hemisphere have equal bases and equal volumes. Find the ratio of their heights.

- a) 1:2 b) 2:1 c) 1:1 d) 3:2

5. How many tiles whose length and breadth are 12 cm and 5 cm respectively will be needed to fit in a rectangular region whose length and breadth are respectively 144 cm and 100 cm?

- a) 240 b) 260 c) 280 d) 300

6. A mother, her little daughter, and her just-born infant boy together stood on a weighing machine which shows 74 kgs. How much does the daughter weigh if the mother weighs 46 kg more than the combined weight of daughter and the infant, and the infant weighs 60% less than the daughter?

- A. 10 kg B. 12 kg C. 8 kg D. 14 kg

7. A milkman mixed 1 : 4 solution of milk and water with another 1 : 2 solution of milk and water in the volume of ratio 3 : 2. If the profit earned by selling the first solution was 20% and the mixture was sold at the same price, what is the profit or loss percentage?

- A) 5.25% loss B) 5.25% profit C) 10% profit D) 10% loss

8. The ratio of monthly incomes of A and B is 4 : 5 and that of their monthly expenditure is 3 :

8. If the income of A is equal to the expenditure of B, then what is the ratio of savings of A and B?

- [a] 8 : 3 (b) 2 : 5 (c) 5 : 2 (d) 3 : 8

9. Jake and Paul each walk 10 km. The speed of Jack is 1.5 times faster than Paul's speed. Jack reaches the destination 1.5 hours before Paul. Then Jake's speed is equal to?

- A) 2 kmph B) 3 kmph C) 4 kmph D) 5 kmph



10. A and B undertake a project worth Rs. 54000 . A alone can do the work in 10 days. They work together for 3 days. After 3 days, B works alone for 3 days and A completes the remaining work in 3 more days.What is the share of B in the earnings?

- A. Rs. 21600 B. Rs. 33400 C. Rs. 27800 D. Rs. 35780 E. None of these

11.If 43 times of a two-digit number is 34 times of another two-digit number, and the sum of the number and its reverse is 14, then what is the number?

- A) 14 B) 59 C) 68 D) 95

12.What is the next number for the given series? 11 23 47 83 131

- A) 191 B) 201 C) 213 D) 241

13.If the ratio of the cost price of table to chair is 5: 4 and the shopkeeper earns the profit of table and chair is 20% and 15% respectively. If the difference between the selling price of table and chair is Rs.280, then find the cost price of table?

- A.Rs.1800 B.Rs.1500 C.Rs.1000 D.Rs.1200

14.Find the harmonic mean (H.M) of 9 and 64.

- A. 15.78 B. 18.56 C. 21.43 D. 24.30

15.The weight of 40 students are given below:

Weight	35	36	40	45
Number of Students	12	15	7	6

Find the mean weight.

- A. 35.5 kg B. 36.5 kg C. 37.5 kg D. 38.5 kg

16.In a moderately skewed distribution, it is known that the mode is 7 and the median is 5. Find the mean of the distribution.

- A. 3 B. 4 C. 5 D. 6

17.What was the percentage profit in selling a liter of milk?

- i) Five liters of milk were sold at cost price after adding 20% water.
ii) Milk was purchased at Rs. 16 per liter.
a) Statement (i) alone is sufficient, but statement (ii) alone is not sufficient to answer the question.
b) Statement (ii) alone is sufficient, but statement (i) alone is not sufficient to answer the question.
c) Both statements together are sufficient, but neither statement alone is sufficient to answer the question.
d) Each statement alone is sufficient to answer the question.

$$18.40 \% \text{ of } 290 + 140 * \sqrt{16} - 60 \% \text{ of } 650 = ?$$

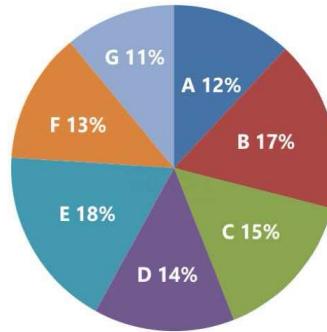
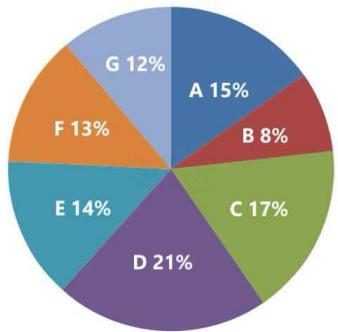
- A.286 B.296 C.276 D.218



19. Study the following graph carefully & answer the questions given below it.

Percentage-wise distribution of students studying in Arts and Commerce in seven different institutions – A, B, C, D, E, F and G.

Total number of students in Arts = 3800 Total number of students in Commerce = 4200



What is the total number of students studying Arts in Institutes A and G together?

- A. 1026 B. 1126 C. 1226 D. 1206 E. 1306

20. Five Friends A, B, C, D, E are sitting in a line facing North. Who is sitting exactly in the middle?

- I. C is sitting between A and B. E is at fourth place to the left of B.
II. E is sitting to the immediate left of D. C is to the immediate left of B.

A.I alone is sufficient B.II alone is sufficient
C.Both I and II are sufficient D.Both I and II are not sufficient

ANSWER KEY FOR NUMERICAL ABILITY

1.B	2.D	3.A	4.B	5.A	6.A	7.A	8.C	9.C	10.A
11.C	12.A	13.C	14.A	15.B	16.B	17.C	18.A	19.A	20.A

REASONING ABILITY

1. Instructions: In a certain code language, the symbols have specific meanings. Determine the conclusions based on the given statements.

Statements: $W \bullet X, X \not\models Y, Y \uparrow Z$

Conclusions: I. $W \blacktriangle Y$ II. $W \uparrow Y$

- A. Both conclusions I and II follow.
 - B. Conclusion I follows.
 - C. Conclusion II follows.
 - D. Neither conclusion I nor II follows.
 - E. Both conclusions I and II do not follow.

2. Instructions: These questions are based on the following information:

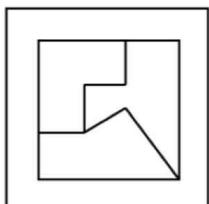
- (I) 'A * B' means 'A is brother of B'
 - (II) 'A / B' means 'B is mother of A'
 - (III) 'A - B' means 'A is father of B'
 - (IV) 'A + B' means 'B is sister of A'

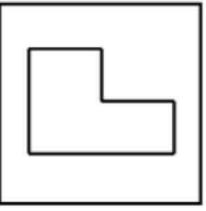
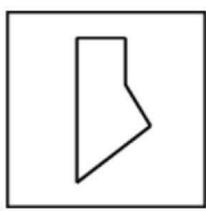
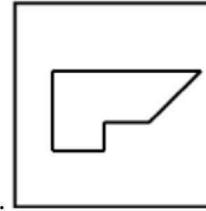
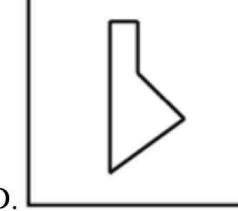


Which of the following means L is the daughter of H?

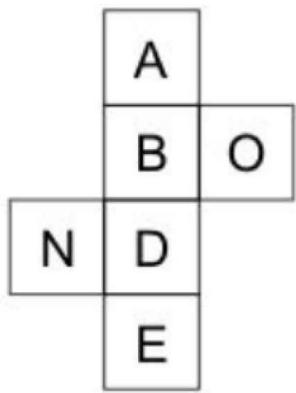
- A. H * J / R + L B. H - J * R + L C. H + J / R - L D. H / J + R * L

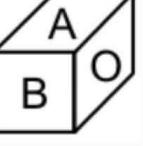
3. From the given options , which answer can be formed by folding the figure given in the question



- A.  B.  C.  D. 

4. From the given options, which figure can be formed by folding the figure given in the question?



- A.  B.  C.  D. 

5. If Ananya walks less fast than Poorvi and Aditi walks as fast but not faster than Shyam; then, as compared to Ananya, Aditi walks:

- A) Faster B) Slower C) At the same pace D) Cannot be determined

6. Examine the following statements:

I listen to watch TV only if I am bored.

I am never bored when I have my brother's company.

Whenever I go camping I take my brother along.

Which one of the following conclusions can be drawn from the above statements?



A) I am not bored when I listen to the radio.

B) I am bored when I listen to the radio.

C) I go camping.

D) I do not go camping.

7. In a certain code language, 'MARGIN' is written as 'SBNOJH'. How will 'PRAYER' be written in that language?

1. BSQQFZ

2. BSQSFZ

3. BSQZFS

4. QSBSFZ

8. Select the set of numbers that is similar to the following set of numbers: {7, 16, 34}

(a) (10, 19, 28) (b) (23, 31, 48) (c) (29, 57, 96) (d) (49, 58, 76)

9. Look at the series 8, 43, 11, 41, ___, 39, 17. What number should fill in the blank?

a) 13 b) 14 c) 15 d) 16

DIRECTIONS (10-11). Study the following information carefully and answer the questions given below. Seven people i.e. A, B, C, D, E, F, and G are born in seven different days of a week starting from Monday to Sunday but not necessarily in the same order. Number of people born before A is same as number of people born after G. A was born four days before D. Two people were born between G and C. Two people were born between B and E. F was born before E but not immediately before.

10. How many people were born after F?

(a) One (b) Three (c) None (d) Two (e) More than three

11. Who was born on Saturday?

(a) C (b) B (c) E (d) D (e) None of these

12. Read the following information carefully and answer the questions that follow.

'P + Q' means 'P is the father of Q'.

'P - Q' means 'P is the wife of Q'.

'P × Q' means 'P is the brother of Q'.

'P ÷ Q' means 'P is the daughter of Q'.

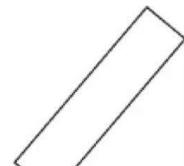
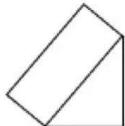
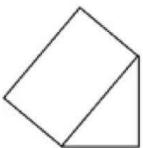
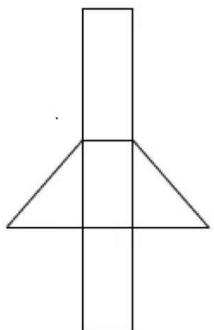
If A ÷ C + D + B, then which of the following statement is true?

a) A is the daughter of B b) B is the aunt of A c) A is the aunt of B d) A is the mother of B



13. Identify the 3D shape that correctly corresponds to the question net.

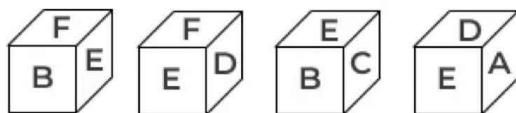
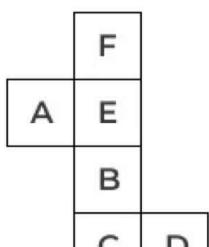
PROBLEM FIGURES :



- A.1 B.2 C.3 D.4

14. Choose the box that is similar to the box formed from the given sheet of paper (X).

PROBLEM FIGURES :



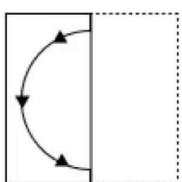
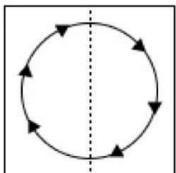
- (1) (2) (3) (4)

- A. Only 1 B. Only 2 C. Only 1 and 3 D. 1, 2, 3 and 4

15. Find out the correct pattern which would appear when the transparent sheet is folded at the dotted line.

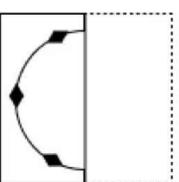


PROBLEM FIGURES :



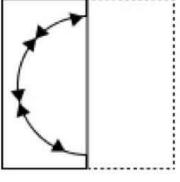
(1)

A.1



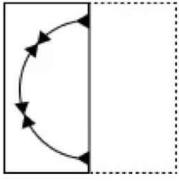
(2)

B.2



(3)

C.3

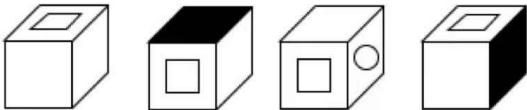
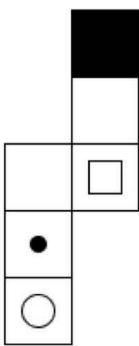


(4)

D.4

16. Choose the box that is similar to the box formed from the given sheet in the problem figures.

PROBLEM FIGURES :



(1)

(2)

(3)

(4)

A.Only 1

B.Only 2 and 3

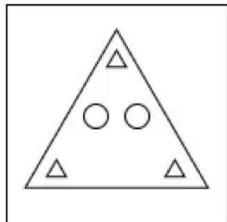
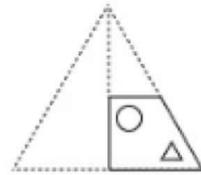
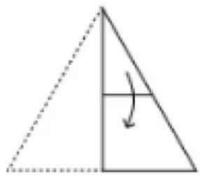
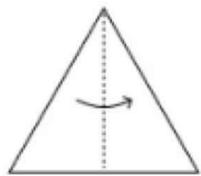
C.Only 1 and 3

D.Only 1 , 2 and 4

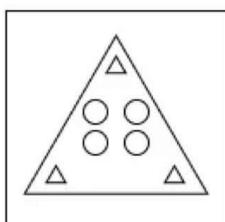
17. A triangular piece of paper is folded (from top to bottom) and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when unfolded?



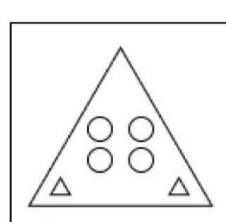
PROBLEM FIGURES :



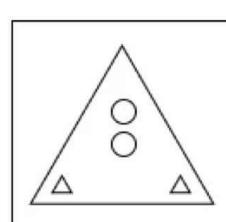
(1)



(2)



(3)



(4)

- A.1 B.2 C.3 D.4

18.S1: Some pens don't write.
are pens.

S2: All blue pens write.

S3: Some writing utensils

If the first three statements are facts, which of the following statements must also be a fact?

- A) All pens write.
B) Some blue pens don't write.
C) Some writing utensils are not pens.
D) All blue pens are writing utensils.

19.A man said to a lady, "Your mother's husband's sister is my aunt". How is the lady related to the man?

- a) Daughter b) Grand daughter c) Mother d) Sister

20.S1: Oval frame costs between \$25 and \$250.

S2: Some oval frames are made of titanium.

S3: Some oval frames are made of plastic.

If the first three statements are facts, which of the following statements must also be a fact?

- A) Some oval frames are made of gold.
B) All oval frames cost less than \$25.
C) Some oval frames are made of metal.
D) Some oval frames cost more than \$250.

ANSWER KEY FOR REASONING ABILITY

1.D	2.B	3.B	4.B	5.D	6.B	7.B	8.C	9.B	10.E
11.C	12.B	13.B	14.C	15.C	16.C	17.A	18.B	19.D	20.A

*****WISH YOU ALL THE BEST*****

**TCS NQT MODEL PAPER 2****NUMERICAL ABILITY**

1. Find the distance between the points (2,2) and (-1,6).
a) 3 b) 4 c) 6 d) 5
2. Find the area of the triangle formed by the three points whose coordinates are (2, 3), (4, 5), and (6, 3).
a) 4 b) 6 c) 8 d) 10
3. What number must be added to 5678 to get a remainder of 35 when divided by 460?
A) 980 B) 797 C) 955 D) 618
4. What will be the remainder when $(1234567890123456789)^{24}$ is divided by 6561?
A) 7 B) 5 C) Zero
5. The ages of the two persons differ by 20 years. If 5 years ago, the older one was 5 times as old as the younger one, then their present ages, in years are:
A) 25 and 5 B) 30 and 10 C) 35 and 15 D) 40 and 20
6. If the average of x and $1/x$ be 2, then the value of $10/x + 1/10x$ is:
A) 1 B) 2 C) 3 D) 4
7. Mr. Govind was a building contractor. He was doing reasonably well in his business but was always on an expansion mode. Mr. Govind won a contract with the Corporation and his business began to boom. So he decided to deploy more people in his projects. If he were to increase his labor force by 33.33%, what will be the percentage reduction in the workload of each employee?
A. 25% B. 20% C. 33.33% D. 30%
8. Mixture of milk and water has been kept in two separate containers. The ratio of milk to water in one of the containers is 5:1 and that in the other container is 7:2. In what ratio should the mixtures of these two containers be added together so that the quantity of the milk in the new mixture may become 80%?
A) 3:2 B) 2:3 C) 4:1 D) 3:1
9. When x is subtracted from each of the numbers 54, 49, 22 and 21, the numbers so obtained are in proportion. The ratio of $(8x - 25)$ to $(7x - 26)$ is:
[a] 29 : 24 (b) 15 : 13 (c) 27 : 26 (d) 5 : 4
10. A bus leaves Mumbai at 3 pm. It travels for 1.5 hours at 60 km/hr and then halts for 30 minutes. It then travels at an average speed of 50 km/hr for the remaining duration to reach Pune at 6 pm. What is the distance between Mumbai and Pune?
A) 100 km B) 120 km C) 140 km D) 160 km



11. A mason can build a tank in 12 h. After working for 6 hrs, he took the help of a boy and finished the work in another 5 h. The time that the boys will take alone to complete the work is

- A. 30 h B. 45 h C. 60 h D. 64 h

12. A sum of Rs. 3000 is distributed amongst A, B, and C. A gets $\frac{2}{3}$ of what B and C got together and C gets $\frac{1}{3}$ of what A and B got together. What is C's share?

- a) Rs. 500 b) Rs. 600 c) Rs. 750 d) Rs. 1000

13. If the mean of the data 5, 7, 10, 14, x, 25, 32, 19 is x, then what is the value of x?

- A. 13 B. 16 C. 19 D. 21

14. What is the standard deviation (correct up to two decimal places) of the numbers: 21334, 21335, 21336, 21337, and 21338?

- A. 1.41 B. 1.58 C. 1.73 D. 1.86

15. If the mean of 29 observations is 33 and on adding one more observation the new mean becomes 34. What is the value of the 30th observation?

- A. 30 B. 31 C. 32 D. 33

16. $(65\% \text{ of } 420 + (513 \div \sqrt{361})) - 124 = ?$

- A. 176 B. 182 C. 186 D. 171 E. 168

17. $(493 \div 29) * (171 \div 9) = ? + 35\% \text{ of } 18$

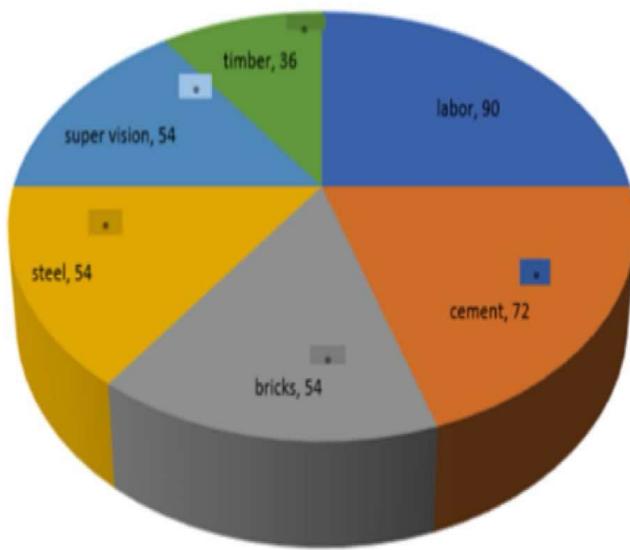
- A. 260 B. 265 C. 270 D. 275 E. 255

18. What is the percentage of Delhi girls who appeared for the class X examination?

Statements:

1. No. of boys who appeared for class X examination in Delhi is 12 lakhs.
 2. Total number of students who appeared for class X examination in Delhi is 22 lakhs.
- a) Statement (i) alone is sufficient, but statement (ii) alone is not sufficient to answer the question.
- b) Statement (ii) alone is sufficient, but statement (i) alone is not sufficient to answer the question.
- c) Both statements together are sufficient, but neither statement alone is sufficient to answer the question.
- d) Each statement alone is sufficient to answer the question.

19. The amount spent on Children Education, Transport and Rent is what percentage of the total earnings?



- A. 45% B. 55% C. 40% D. 50%

20. Average marks of a,b,c is 48. When d joins average becomes 47. E has 3 more marks than d. Average marks of b,c,d,e is 48. What is the marks of a?

- A.42 B.43 C.53 D.63

ANSWER KEY FOR NUMERICAL ABILITY

1.D	2.A	3.B	4.C	5.B	6.B	7.A	8.B	9.A	10.C
11.C	12.C	13.B	14.A	15.A	16.A	17.A	18.C	19.D	20.B

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REASONING ABILITY

1. Instructions: In the following questions, the Symbols @, ©, \$, % and # are used with the following meanings:

- 'A \$ B' means 'A is not smaller than B'
- 'A # B' means 'A is not greater than B'
- 'A @ B' means 'A is neither smaller than nor equal to B'
- 'A © B' means 'A is neither smaller than nor greater than B'
- 'A % B' means 'A is neither greater than nor equal to B'

Statements: H % J, J © N, N @ R

Conclusions: I. R % J II. H @ J III. N @ H

- A. Only I and II follow B. Only II and III follow

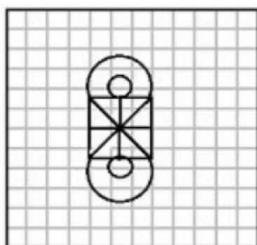


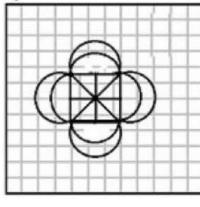
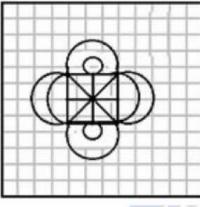
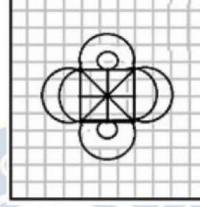
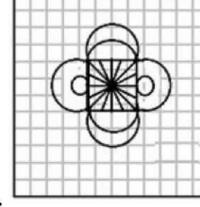
C. Only I and III follow D. All I, II, and III follow

2. Instructions: If * stands for 'addition', / stands for 'subtraction', + stands for 'multiplication', and - stands for 'division', then $20 * 8 / 8 - 4 + 2 = ?$

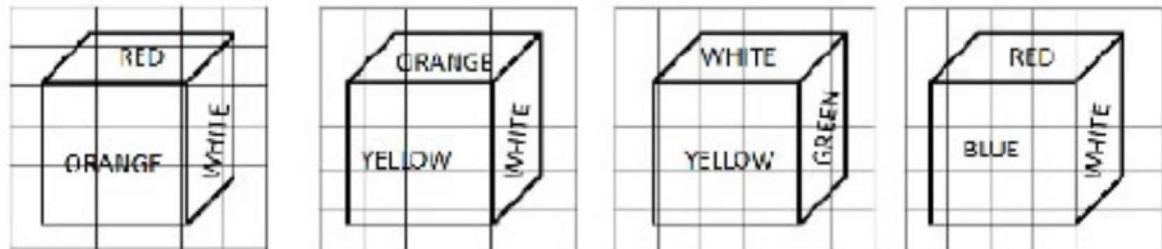
- A. 24 B. 20 C. 16 D. 12 E. 8

3. From the given answer figures , select the one in which the question figure is hidden/embedded.



- A.  B.  C.  D. 

4. Four Positions of a cube are shown below. Which colour is opposite to white colour in the given cubes?



- A. Orange B. Blue C. Red D. Green

5. In the last T 20 Series, Rohit Sharma was in great form and India won the match" is a true statement. Which of the following conclusions is correct?

- A) Rohit Sharma was not in great form. B) India did not win the match.
C) Rohit Sharma was in great form. D) India won the match.

6. In a certain code language, PLEASANT is written as BFMQUOBT. How will DISTANCE be written in that language?

1. UTJEBODF 2. TJEBUFDO 3. UTJEFDOB 4. UTESBFOD

7. In a certain code language 'PAYMENT' is coded as '6101814111520 ' and 'JUSTIFY' is



coded as '11141519151620'. How will 'COMPARE' be coded in that language?

1. 680113111103 2. 601811031131 3. 613101113801 4. 681013101113

8. Select the option that is related to the fourth term in the same way as the second term is related to the first term: DFZ: IIU:: _____ :KLT

- (a) EHW (b) FHX (c) FIY (d) EIY

9. Find the missing term in the series: 25, ?, 36, 64, 129, 225

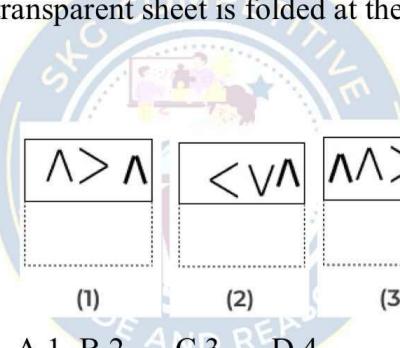
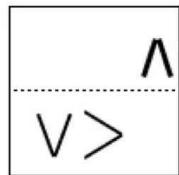
- a) 29 b) 30 c) 31 d) 32

10. L is father of M, who is the father of P. B is the daughter of R, who is the only daughter in law of L. L has one grandson and one Granddaughter. Then how is L related to P?

- a) Grandmother b) Grandfather c) Mother d) Uncle

11. The sheet given in the problem figures is a transparent sheet. Choose the correct option which would appear when the transparent sheet is folded at the dotted line.

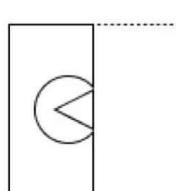
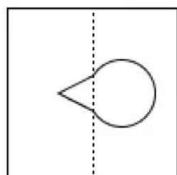
PROBLEM FIGURES :



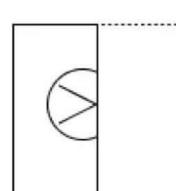
- A.1 B.2 C.3 D.4

12. The sheet given in the problem figures is a transparent sheet. Choose the correct option which would appear when the transparent sheet is folded at the dotted line.

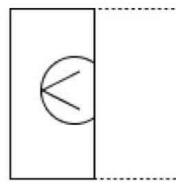
PROBLEM FIGURES :



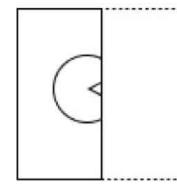
- (1)



- (2)



- (3)



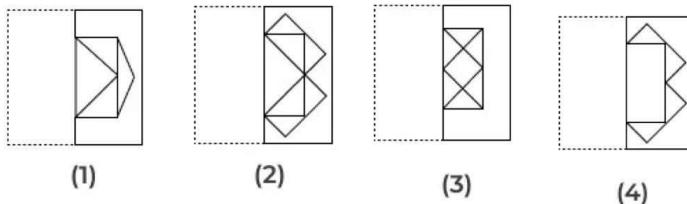
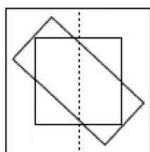
- (4)

- A.1 B.2 C.3 D.4

13. Find out the correct pattern which would appear when the transparent sheet is folded at the dotted line.



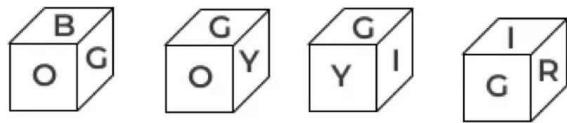
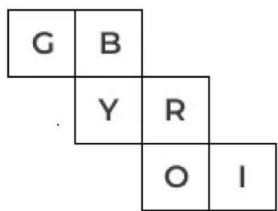
PROBLEM FIGURES :



- A.1 B.2 C.3 D.4

14. From the given options, which figure can be formed by folding the figure given in the question?

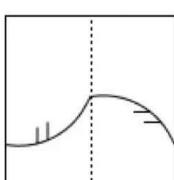
PROBLEM FIGURES :

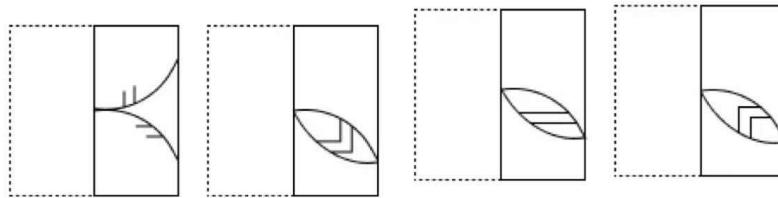


- A.1 B.2 C.3 D.4

15. Choose the correct option as to how the pattern would appear when the transparent sheet is folded at the dotted line.

PROBLEM FIGURES :





(1)

(2)

(3)

(4)

- A.1 B.2 C.3 D.4

16.S1: Pictures can tell a story.

S2: All storybooks have pictures.

S3: Some storybooks have words.

If the first three statements are facts, which of the following statements must also be a fact?

- A) All pictures can tell a story.
B) Some pictures are not in storybooks.
C) All storybooks have only pictures.
D) Some storybooks have only words.

17.Only if Shweta is happy, then she does not go to work.

A) If Shweta is happy, then she does not go to work.

B) If Shweta goes to work, then she is not happy.

C) If Shweta is not happy, then she goes to work.

D) If Shweta goes to work, then she is happy.

18.Dave is famous as a drummer or as a pianist.

- A) If Dave is not famous as a drummer, then he is famous as a pianist.
B) If Dave is famous as a drummer, then he is not famous as a pianist.
C) Dave is not famous as a pianist.
D) Dave is famous as a drummer.

19.The loan will not be recovered or the deposit will be returned.

- A) The loan will be recovered and the deposit will not be returned.
B) The loan will not be recovered and the deposit will be returned.
C) The loan will be recovered and the deposit will be returned.
D) The loan will not be recovered or the deposit will not be returned.

20.In the question below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and give answer

How many children are there between P and Q.in a row of children?

Statements:

I. P is fifteenth from the left in the row.

II. Q.is exactly in the middle of the row and there are ten children towards his right.



-
- a) If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question
 - b) If the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question
 - c) If the data either in statement I alone or in statement II alone are sufficient to answer the question
 - d) If the data in both statements I and II together are necessary to answer the question.

ANSWER KEY FOR REASONING ABILITY

1.D	2.A	3.C	4.D	5.D	6.C	7.D	8.C	9.B	10.B
11.A	12.D	13.B	14.B	15.D	16.B	17.C	18.B	19.D	20.D

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TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

TCS Ninja Numerical Ability Questions

Q1. The LCM and HCF of the three numbers 48, 144 and p are 720 and 24 respectively, find the least value of p.

- A. 192
- B. 120
- C. 360
- D. 180

Answer: B

Q2. Simplify and find the value

$$0.0217 \times 3.18$$

$$0.0053 \times 15.5 \times 0.7$$

- A. 1.2
- B. 0.12
- C. 12
- D. 0.012

Answer: A

Q3. What value should come in the place of question mark (?) in the following equation?

$$8 / [2 \times 2 - \{14 + (2 / 4 \times 4) - 13\}] = \frac{3}{4} + ?$$

- A. 2
- B. 1/4
- C. 29/4
- D. 5/16

Answer: C

Q4. Simplify and find the value,

$$216 \times 216 + 216 \times 194 + 194 \times 194$$

$$216 \times 216 \times 216 - 194 \times 194 \times 194$$

- A. 1/11
- B. 2/11
- C. 1/22
- D. 1/33

Answer: C

Q5. Boy scored 90 marks in his mid-term exam and 105 in his end-term exam. If the maximum marks in both the examinations are 150, then find the increase in his marks in percentage points.

- A. 10%
- B. 15%
- C. 14.28%
- D. 16.66%

Answer: A

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

Q6. A shopkeeper marks the sale price of all items in his shop at 20% above the cost price of those items. However, he offers a discount of 15% on the sale price of these items to his customers. Calculate the profit earned by him, in percentage.

- A. 5%
- B. 2%
- C. 10%
- D. 2.5%

Answer: B

Q7. Plant A of a factory, during audit 6% of parts got rejected from the total production. In Plant B, the same number of parts were rejected with 96 units of parts rejected less than Plant A. What was the number of parts produced by each factory?

- A. 4800
- B. 10000
- C. 9600
- D. 7200

Answer: A

Q7. Amounts at the end of 2 yrs and 3 yrs are Rs. 1170 and Rs. 1305 on a certain sum, at a certain rate of simple interest. Find the rate of interest.

- A. 12% p.a.
- B. 9% p.a.
- C. 15% p.a.
- D. 18% p.a.

Answer: C

Q8.

Town	Average age of male (In Years)	Average age of females (In Years)
P	50	40
Q	45	35
R	30	25
S	25	28
T	35	27
U	32	22

If the number of males and females in town P are equal and the number of females in town Q is 50% more than the number of males in the town Q, then what is the difference between the average age of males and females together in town P and the average age of males and females together in town Q?

- A. 6 years
- B. 8 years
- C. 5 years
- D. 9 years

Answer: A

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

Q9. In a certain amount, compound interest at the rate of 12.5% per annum for the fifth year 2048. If the interest is compounded annually. What is the compound interest for the 8th year?

- A. \$ 2592
- B. \$ 2304
- C. \$ 2916
- D. \$ 3280

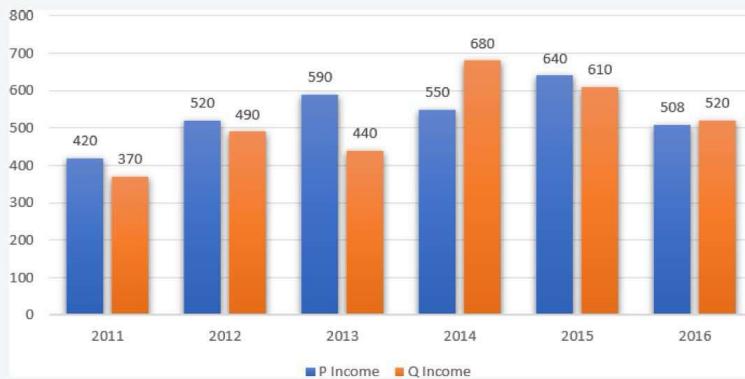
Answer: C

Q10. R and company has two directors, X and Y who have invested Rs. 1,25,000 and 1,00,000 respectively. X is the working partner and hence takes 5% of the profit as his salary. Find X's share of the profit, if their annual profit is Rs. 72,000.

- A. 40,000
- B. 32,000
- C. 38,000
- D. 42,000

Answer: C

Q10. In how many given years is the income of P in a year, more than then the average of the income of P and Q in the same year?



- A. 4
- B. 2
- C. 3
- D. 5

Answer: A

Q11. Two numbers having their LCM 480 are in a ratio 3 : 4. What will be the smaller number of this pair?

- A. 180
- B. 120
- C. 160
- D. 240

Answer: B

Q12. Quantity of wine in a mixture (wine + water + soda) is 24 ml more than water and 40 ml less than soda. When 20% mixture is replaced by water, the total quantity of water in the mixture becomes 208 ml. What is the initial quantity of wine in the mixture?

- A. 180 ml

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

- B. 120 ml
- C. 160 ml
- D. 140 ml

Answer: C

Q13. Two taps A and B fill an empty tank in 40 mins and 60 mins respectively. If both the taps are opened at 5 am, then at what time A be closed so that the tank is filled in 36 mins?

- A. 5.22 am
- B. 5.12 am
- C. 5.16 am
- D. 5.05 am

Answer: C

Q14. 6 men together can complete a one-third of work in 12 days. Four women together can complete half of the same work in 27 days and nine boys together can complete three-fourth of the same work in 54 days. In how many days can three men, 2 women and 3 boys together complete the work?

- A. 30 days
- B. 36 days
- C. 24 days
- D. 45 days

Answer: B

Q15. Sindhu, Madhavi and Jayanthi are participating in a 3 x 900 metres relay race. Sindhu covered her distance in 3 minutes. Madhavi covered her distance in 4 minutes. How much time should Jayanathi take to finish the race to maintain the team's average speed at 4 m/s?

- A. 4 minutes
- B. 5.25 minutes
- C. 4.25 minutes
- D. 3.75 minutes

Answer: C

Q16. A box contains a total of 45 coins of one rupee, five rupees and two rupees. The total value of all the coins in the box is Rs. 91. The number of one rupee coin is one more than the total number of 5 rupees and two rupees coins. What is the number of five rupees coins in the box?

- A. 12
- B. 8
- C. 6
- D. 10

Answer: B

Q17. Akshat's walking speed is 5 km/h. The bus stop is 1 kilometre away from his house. Akshat walks to the bus stop and then takes a bus to school. The speed of the bus is 40 Km/h. Akshat's school is 10 Kilometers away from the bus stop. How much time will Akshat take to reach his school from his house, if he boards a bus as soon as he reaches the bus stop?

- A. 20 minutes

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

- B. 34 minutes
- C. 27 minutes
- D. 30 minutes

Answer: C

Q18. A park is square in shape with its perimeter four times the perimeter of a rectangle having length 15 metres and breadth 10 metres. There is a semi-circular lawn inside the park that has a diameter equal to the side of the square. Calculate the perimeter of this lawn.(Take $\pi = 3.14$).

- A. 140 metres
- B. 50 metres
- C. 128.5 metres
- D. 125.5 metres

Answer: C

Q19. A magician wants to hide his magical rod inside a cubical box whose total surface area is 3042 cm². What can be the maximum length of the rod?

- A. 37 cm
- B. 42 cm
- C. 33 cm
- D. 39 cm

Answer: D

Q20. The average of 13 consecutive natural numbers is x. If the seventh number is 22, find x.

- A. 20
- B. 22
- C. 28
- D. 14

Answer: B

Q21. The standard deviation of prime numbers between 60 and 80 is 6.72. If each observation is multiplied by the median of the numbers, then find the difference of standard deviations of the obtained observations and median of the numbers.

- A. 484.68
- B. 412.36
- C. 406.12
- D. 477.12

Answer: D

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

TCS Ninja Verbal Ability Questions

Q1. The part of the sentence below may contain an error. Identify the part. If there is no error, choose 'No error'.

World Health Organisation must intensify their efforts to vaccinate people in African countries.

- A. World Health Organisation must
- B. people in African countries.
- C. No error
- D. intensify their efforts to vaccinate

Answer: D

Q2. The part of the sentence below may contain an error. Identify the part. If there is no error, choose 'No error'.

A paramedic is expected to be highly skilled into dealing with emergency patients.

- A. highly skilled into dealing with
- B. No error
- C. emergency patients
- D. A paramedic is expected to be

Answer: A

Q3. The part of the sentence below may contain an error. Identify the part. If there is no error, choose 'No error'.

The rise in the price of oil and an increase in demand has forced some farmers to harvest oil crops for biofuels.

- A. farmers to produce oil crops for biofuels.
- B. No error
- C. in demand has forced some
- D. The rise in the price of oil and an increase

Answer: C

Q4. Select the most appropriate option to fill in the blank.

I have a lot of work to do. I can't leave the office _____ one hour.

- A. by
- B. until
- C. for
- D. since

Answer: C

Q5. Read the following passage and fill in the blanks by selecting the more appropriate options.

By 2025, marketing campaigns____1____relied on Artificial Intelligence to enhance customer experience. Companies will be communicating their____2____only through personalised and curated content.

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Blank 1: A. will B. will have C. would D. wil being

Blank 2: A. uniqueness B. marketing C. future D. products

A. 1-B, 2-A

B. 1-B, 2-B

C. 1-D, 2-B

D. 1-A, 2-C

Answer: A

Q6. Read the following passage and fill in the blanks by selecting the more appropriate options.

The main cause of teachers leaving the workforce is not tough and rigid work contract in schools, but _____ is poor working condition _____ meagre salaries.

Blank 1: A. rather B. however C. so D. then

Blank 2: A. aroused B. worsened C. aided D. eased

A. 1-A and 2-B

B. 1-B and 2-B

C. 1-A and 2-D

D. 1-D and 2-C

Answer: 1-A 2-C (Not in option)

Q7. Select the most appropriate option to fill in the blank.

Almost all colonial buildings have been so altered and developed that their _____ structure is no longer _____.

A. external, necessary

B. original, recognisable

C. main, found

D. Internal, attractive

Answer: B

Q8. For the four sentence (S1-S4) paragraph below, sentences S1 and S4 are given. From the options P, Q and R choose the appropriate sentences for S2 and S3 respectively.

S1. Some 200 km from Leh are the villages of Dha, Hanu, Garkone and Darchik on both sides of the Indus river, inhabited by the Buddhist Dard Tribes.

S2.

S3.

S4. He added people of this region are culturally and linguistically different from those in other parts of Ladakh.

P. The villages are together called the "Aryan valley"

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Q. "The word 'Dard' is derived from the Sanskrit word, 'Daradas', which means people who live on hillsides", said Virendra Bangroo, assistant professor at Indira Gandhi National Centre for the Arts (IGNCA), who has extensively researched on their lives.

R. There is also a line of thought that the "Aryans of Ladakh" might have descended from soldiers in Alexander's army who had come to the region over 2,000 years ago.

- A. RP
- B. QP
- C. PR
- D. PQ

Answer: D

Q9. For the four sentence (S1-S4) paragraph below, sentences S1 and S4 are given. From the options P, Q and R choose the appropriate sentences for S2 and S3 respectively.

S1. When employees are constantly working for a long time, they start getting influenced by others' moods and vibes.

S2.

S3.

S4. But this emotional transfer also happens through digital communication.

- P. This phenomenon is known as emotional contagion.
- Q. Positive emotions lead to higher productivity, creativity, and job performance.
- R. Emotional contagion is most pronounced when employees are together physically.

- A. PQ
- B. PR
- C. QP
- D. RP

Answer: B

Q10. You are going to read a text. Parts of two sentences are missing from the text. Choose from the list (A-C) the most appropriate part to complete the sentence for each gap (1-2) in the text. There is one extra part that you do not need to use.

Those who are concerned about society may be troubled by the idea of overdependence on technology
____(1)____ We have made technology our primary religion and culture.____(2)____

- A. It has started to overtake us because it has crippled our ability to keep a track of events around us.
- B. Our new religion and culture is making us more confident and productive.
- C. Our deviation from our roots affects our ability to trust each other.

- A. (1) B and (2) C
- B. (1) C and (2) A
- C. (1) A and (2) B
- D. (1) A and (2) C

Answer: D

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Q11. Which of the following sentences uses formal language?

- A. Numerous research methods were considered for the study.
- B. It was raining cats and dogs.
- C. She uses loads of examples in the class.
- D. The improvements can't be introduced due to funding restrictions.

Answer: A

Q12. The following sentence pair can be combined into one better sentence. Choose the option that combines the two sentences best.

I completed the assignment. I submitted the assignment.

- A. I completed but submitted the assignment
- B. I completed the assignment and submitted it
- C. I completed the assignment, however, I submitted the assignment
- D. Although I completed the assignment, I submitted the assignment

Answer: B

Q13. You are going to read a text. Parts of two sentences are missing from the text. Choose from the list (A-C) the most appropriate part to complete the sentence for each gap (1-2) in the text. There is one extra part that you do not need to use.

In order to conduct clinical trials of medical treatments, scientists gather a huge amount of information of their patients._1_Some researchers argue that medical research can be massively improved by a shift toward artificial Intelligence._2_.

- A. This can result in more efficient and less complicated clinical trials of medical treatments.
- B. This can pave the way for more innovative and cost-efficient treatment.
- C. This practice increases the costs of collecting, storing and analysing data.

- A. 1-A, 2-C
- B. 1-B, 2-A
- C. 1-B, 2-C
- D. 1-C, 2-A

Answer: D

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TCS Ninja Reasoning Ability Questions

Q1. Which is the WRONG term in the following series?

mkl, imj, gqh, csf, awd, wyb, udw

- A. csf
- B. udw
- C. awd
- D. wyb

Answer: B

Q2. In each of the five pairs of letter clusters, the letters in a second term are a rearranged/transformed form of the letters in the first term in a particular pattern. In which two pairs, has the transformation been done in the same way?

- A. ACTOR:CROTA
- B. BENCH:CEHBN
- C. CHAIR:ARHCI
- D. DIRTY:RYITD
- E. ENJOY:JYNEO

- A. A and C
- B. B and D
- C. E and C
- D. B and E

Answer: D

Q3. Given below is a question followed by two statements, I and II each containing some information. Decide which of the statement(s) is/are sufficient to answer the question.

How many persons are sitting in the row?

Statements:

- I. Ghazi, who is 5th to the right of Anish, is 12th from the left end. Anish is 15th from the right end.
- II. Zenia is 4th to the left of Karan, who is 15th from the right end.

- A. Statement I alone is sufficient.
- B. Statement I alone or statement II alone is sufficient.
- C. Statement II alone is sufficient.
- D. Both the statements I and II together are not sufficient.

Answer: A

Q4. Given below is a question followed by two statements, I and II each containing some information. Decide which of the statement(s) is/are sufficient to answer the question.

Six persons P to Q are sitting in a row facing north direction. Who among the following sits at extreme right end?

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Statement I:

P sits third to the left of U. Q sits two places away from P but not adjacent to U. T sits immediate left of S.

Statement II:

There are two persons between Q and T. S sits to the immediate left of U but to the right of T. Neither S nor U is adjacent.

- A. If the data in statement II alone is sufficient to answer the question
- B. If the data either in statement I or statement II alone is sufficient to answer the question.
- C. If the data in statement I alone is sufficient to answer the question.
- D. If the data in both statements I and II together are not sufficient to answer the question.

Answer: B

Q5. In a certain code, if:

S#T means S is the father of T
S@T means S is the wife of T
S%T means S is the brother of T
S\$T means S is the sister of T
S&T means S is the daughter of T
S*T means S is the son of T

- I. E*C
- II. H@F
- III. J*G
- IV. F%E
- V. L\$K
- VI. J%I
- VII. I&E
- VIII. K*F
- IX. F*D

Who among the following is not a male?

- A. J
- B. F
- C. L
- D. E

Answer: C

Q6. A, B, C, D, E, F and G are standing in a row facing north. B is to the left of D. There are two persons C and G. E is adjacent of B and C. F is to the immediate right of G.

Who is standing exactly in the middle?

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- A. F
- B. E
- C. C
- D. A

Answer: C

Q7. Eight persons A, B, C, D, E, F, G and H are sitting around a circular table. The following is the information known about them. B is opposite E who is neither adjacent to C nor to D. H is to the right of E and D is to the right of B. C does not sit near D and H. A does not sit near H and E. Two people sit between G and D, when counted from the right of G. Who is sitting opposite G?

- A. F
- B. C
- C. A
- D. H

Answer: C

Q8. Six persons Vinay, Vijay, Varun, Varsha, Vinod and Vartika were seated in a row not necessarily in the same order. They were seated facing the north, Vijay was 2nd to the right of Varsha who was seated at a gap of 3 from Vartika. Vinay was 2nd to the right of Varun who was not neighbouring Vijay. Who was seated to the immediate right of Vinod?

- A. Varsha
- B. Vartika
- C. Varun
- D. Vijay

Answer: B

Q9. Mahendra is going to buy a laptop, following are the criteria of selection of the laptop given by his father.

- a) must be for less than Rs. 40,000
- b) must have RAM equal or more than 8GB
- c) must have Intel processor of version i3 or above
- d) If any laptop is satisfying all the above criteria except (a), he will need his dad's permission if it is for less than Rs. 50,000
- e) If any laptop is satisfying all the above criteria except (b), he will need his mom's permission if it has storage of more than 512 GB.

Acer AT20 is a new laptop in the market costing Rs. 35,000 and having 8GB RAM. It consists of processor i5 and pre-installed windows 10.

Which of the following options below is CORRECT for the laptop given above?

- A. He needs mom's permission to buy it
- B. He will buy the laptop
- C. He will not buy the laptop

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D. He needs dad's permission to buy it

Answer: B

Q10. Shekar asked his girlfriend to book a hotel in Udaipur for their trip. Following are the selection of hotel they have decided:

- (a) Price of hotel must be less than Rs. 5000 per night.
- (b) Couple should be allowed.
- (c) It should be within 10km from the railway station.
- (d) If a hostel satisfies all the criteria except (a) but it is providing online payment option, she will ask her friend for finalization.
- (e) If a hotel satisfies all the criteria except (c) but it provides free breakfast, she will ask Shekhar for finalisation.

"Hotel Disaster Inn" is offering super deluxe room at the price os Rs. 4500 per night. Its rating on Google is 4.5 and it is 12 km from railway Station. Hotel policy allows couple to check in with original ID card and pay in cash. Free breakfast, sofas, swimming pool, parking, lift and AC are mentioned in the facilities.

Which of the following options below is CORRECT for the selection of hotel above?

- A. It will not be finalised by her friend.
- B. She will ask Shekar for finalisation.
- C. It will be selected by her.
- D. She will ask her friend for finalization

Answer: B

Q11. Three statements are followed by three conclusions number I, II and III. Assuming the statements to be TRUE, even if they do not confirm world knowledge, decide which of the conclusion(s) possibly follows/follow from the statements.

Statements:

- 1. Some vehicles are trucks.
- 2. All aeroplanes are vehicles.
- 3. No truck is car.

Conclusions:

- I. No car is aeroplane.
- II. It is possible that some trucks are aeroplanes.
- III. Some cars are aeroplanes.

- A. Only II follows
- B. Only I and II follow
- C. Only II and III follow
- D. Only II and either I or III follow

Answer: A

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Q12. Two statements are followed by two conclusions numbered I and II. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follows from the given statement.

Statements:

All paths are roads
Some roads are highway

Conclusions:

I. Some highways are paths
II. All paths being highway is a possibility

- A. Both conclusions I and II follow
- B. Only conclusion I follow
- C. Neither conclusion I nor II follow
- D. Only conclusion II follows

Answer: D

Q13. A statement is followed by two arguments numbered I and II. Decide which of the argument(s) is/ are strong (important and directed related to the question) and which is/ are weak (not important and not related to the central message of the question).

Statement : Should the Government of India privatise their shares of public entities?

Argument I. No, it will reduce their assets, which can help them in the difficult time.

Argument II. Yes. Mixed economies like India will be in better condition if they do so.

- A. Only argument II is strong
- B. Neither I nor II is strong
- C. Both I and II are strong
- D. Only Argument I is strong

Answer: A

Q14. The given question consists of six statements followed by 4 options consisting of three statements put together in a specific order. Choose the option, which indicates a valid argument that is, when the third statement is a conclusion drawn from the preceding two statements.

(a) Some mails are fails

(b) Bail is a fail

(c) Some jail is mail

(d) Fail is jail

(e) No mail is a fail

(f) No bail is mail

A. b e f

B. c b a

C. a f b

D. c d e

Answer: A

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

Q15. The ratio of the number of executive and non-executive employees working in a company is 2:5. 50% of the executives and 30% of the non-executives stay outside the company campus. 350 of the employees staying outside the campus live in their own houses with the ratio of 2:3 between executives and non-executives, while the rest live in rented houses. 60 non-executives stay in rented houses. 60% of the employees staying in rented houses travel to their workplace by two-wheelers and the rest 40% travel by the company bus. The number of executives travelling by the company bus is 15.

I. How many employees are working in the company?

- A. 1080
- B. 1180
- C. 1320
- D. 1260

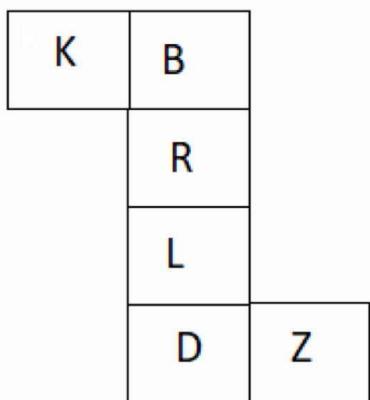
Answer: D

II. How many non-executives travel by the company bus to their workplace?

- A. 35
- B. 15
- C. 40
- D. 25

Answer: D

Q16. If the given figure is folded to form a cube, which symbol will come opposite to "Z"?



- A. L
- B. B
- C. R
- D. K

Answer: D

Q17. The ratio of the number of executive and non-executive employees working in a company is 2:5. 50% of the executives and 30% of the non-executives stay outside the company campus. 350 of the employees staying outside the campus live in their own houses with the ratio of 2:3 between executives and non-executives, while the rest live in rented houses. 60 non-executives stay in rented houses. 60% of the

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employees staying in rented houses travel to their workplace by two-wheelers and the rest 40% travel by the company bus. The number of executives travelling by the company bus is 15.

How many executives are staying outside?

- A. 210
- B. 180
- C. 120
- D. 140

Answer: D

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TCS Ninja Programming Logic Questions

Q1. What is the output of the prefix expression +, -, *, 7, 2, /, 9, 3, 1?

- A. 13
- B. 10
- C. 11
- D. 12

Answer: D

Q2. What is the output of the following code?

```
Integer digit = 0;
```

```
if digit
```

```
print "1"
```

```
else
```

```
print "digit"
```

```
end if
```

- A.1

- B.0

- C.digit

- D.Nothing will print

Answer: C

Q3. What is the output of the code?

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

```
void f(int*p, int*m)
```

```
{*m=*m+3;
```

```
*p=*p+*m;
```

```
return;
```

```
}
```

```
int main ()
```

```
{
```

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```
int i = 5, j = 6;
```

```
int k=0;
```

```
f(&i,&j);
```

```
k=(i*j);
```

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

```
return 0;
```

```
}
```

A. 134

B. 126

C. 125

D. 138

Answer: B

Q4. What is the output of the below code?

```
#include <iostream>
```

```
using namespace std;
```

```
int main ()
```

```
{
```

```
Int skip_num;
```

```
for (skip_num = 1; skip_num<=5; skip_num++){
```

```
if(skip_num ==2 || skip_num ==4){
```

```
continue;
```

```
}
```

```
cout<<skip_num;
```

```
cout<<"
```

```
}
```

```
return 0;
```

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}

A. 1 3 5

B. 1 3 4 5

C. 1 2 5

D. 2 4 6

Answer: A

Q5. Below is the JSON format to share the employee data.

{

“id”: “001”,

“Name”: “John”

“Department”: “QA”

A JSON format, designed with a collection of (key, value) and pairs in which each of the key appears at once in the collection.

Which type of data structures is most suitable to implement JSON format?

A. Doubly Linked List

B. AVL Tree

C. Single Linked List

D. Associative Array

Answer: B

Q6. Evaluation of cyclomatic complexity comes under which type of testing?

A. Black Testing

B. White Testing

C. Stress Testing

D. Gray Testing

Answer: B

Q7. What is the output of the below code?

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

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

```
Void main ()  
{  
    Int rate = 15, piece = 10, interim, result = 0;  
    interim = rate % piece;  
    result += interim / 5  
    printf("%d, result);  
}
```

- A. 10
- B. 2
- C. 5
- D. 1

Answer: D

Q8. What will be the output of the given program?

```
#include <iostream>  
using namespace  
std;  
int main ()  
{  
  
    Int sides = 3;  
  
    Int lines = 3;  
  
    If (!(sides^lines))  
  
        cout<< "Triangle";  
  
    else  
  
        cout<<"Others";  
  
    return 0;  
}
```

Enter your answer in the box.

Answer: Triangle

Q9. Predict the output of the following code

```
#include<iostream>  
using namespace std;  
int main()
```

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

{

```
int a = 3, b = 5;
```

```
while(b--)
```

```
    a++;
```

```
cout << a;
```

```
return 0;
```

}

Answer: 8

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TCS Ninja Hands-on Coding Questions

Q1. Airport security officials have confiscated several items of the passenger at the security checkpoint. All the items have been dumped into a huge box(array). Each item possessed a certain amount of risk(0,1,2). Here is the risk severity of the item representing an array[] of N number of integer values. The risk here is to sort the item based on their level of risk values range from 0 to 2.

Example 1:

Input:

7 ----- Value of N

[1,0,2,0,1,0,2] -> Element of arr[0] to arr[N-1], while input each element is separated by new line

Output:

0 0 0 1 1 2 2 -> Element after sorting based on the risk severity.

Example 2:

Input:

10----- Value of N

[2,1,0,2,1,0,0,1,2,0] -> Element of arr[0] to arr[N-1], while input each element is separated by new line

Output:

0 0 0 0 0 1 1 1 2 2 2 -> Element after sorting based on the risk severity.

Constraints

0<N<=100

0<=arr[i]<=2

Code Solution:

```
#include<iostream>
using namespace std;
int main()
{
    int n;
    cin >> n;
```

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

```
int arr[n];
for(int i = 0; i < n; i++)
{
    cin >> arr[i];
}
for(int i = 0; i < n; i++)
{
    for(int j = i+1; j < n; j++)
    {
        if(arr[i] > arr[j])
        {
            int temp = arr[i];
            arr[i] = arr[j];
            arr[j] = temp;
        }
    }
}
for(int i = 0; i < n; i++)
{
    cout << arr[i] << " ";
}
```

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

Q2. Given N gold wires, each wire has a length associated with it. At a time, only two adjacent small wires are assembled at the end of a large wire and the cost of forming is the sum of their length. Find the minimum cost when all wires are assembled to form a single wire.

For Example:

Suppose, Arr[] = {7, 6, 8, 6, 1, 1}
{7, 6, 8, 6, 1, 1} - {7, 6, 8, 6, 2}, cost = 2
{7, 6, 8, 6, 2} - {7, 6, 8, 8}, cost = 8
{7, 6, 8, 8} - {13, 8, 8}, cost = 13
{13, 8, 8} - {13, 16}, cost = 16
{13, 16} - {29}, cost = 29
2 + 8 + 13 + 16 + 29 = 68

Hence, the minimum cost to assemble all gold wires is : 68

Constraints:

1 <= N <= 30
1 <= Arr[] <= 100

Example 1:

Input:

6 -> Value of N, represents size of Arr
7 -> Value of Arr[0], represents length of 1st wire
6 -> Value of Arr[1], represents length of 2nd wire
8 -> Value of Arr[2], represents length of 3rd wire
6 -> Value of Arr[3], represents length of 4th wire
-1 -> Value of Arr[4], represents length of 5th wire
1 -> Value of Arr[5], represents length of 6th wire

Output:

68

Example 2:

Input:

4 -> Value of N, represents size of Arr
12 -> Value of Arr[0], represents length of 1st wire
2 -> Value of Arr[1], represents length of 2nd wire
2 -> Value of Arr[2], represents length of 3rd wire
5 -> Value of Arr[3], represents length of 4th wire

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Output:

34

Code Solution

```
#include <bits/stdc++.h>

using namespace std;

struct MinHeap {
    unsigned size;
    unsigned capacity;
    int* harr;
};

struct MinHeap* createMinHeap(unsigned capacity)
{
    struct MinHeap* minHeap = new MinHeap;
    minHeap->size = 0;
    minHeap->capacity = capacity;
    minHeap->harr = new int[capacity];
    return minHeap;
}

void swapMinHeapNode(int* a, int* b)
{
    int temp = *a;
    *a = *b;
    *b = temp;
}

void minHeapify(struct MinHeap* minHeap, int idx)
{
    int smallest = idx;
    int left = 2 * idx + 1;
    int right = 2 * idx + 2;

    if (left < minHeap->size
        && minHeap->harr[left] < minHeap->harr[smallest])
        smallest = left;

    if (right < minHeap->size
        && minHeap->harr[right] < minHeap->harr[smallest])
        smallest = right;

    if (smallest != idx)
    {
        swapMinHeapNode(&minHeap->harr[idx], &minHeap->harr[smallest]);
        minHeapify(minHeap, smallest);
    }
}
```

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

```
if (right < minHeap->size
    && minHeap->harr[right] < minHeap->harr[smallest])
    smallest = right;

if (smallest != idx) {
    swapMinHeapNode(&minHeap->harr[smallest], &minHeap->harr[idx]);
    minHeapify(minHeap, smallest);
}
}

int isSizeOne(struct MinHeap* minHeap)
{
    return (minHeap->size == 1);
}

int extractMin(struct MinHeap* minHeap)
{
    int temp = minHeap->harr[0];
    minHeap->harr[0] = minHeap->harr[minHeap->size - 1];
    --minHeap->size;
    minHeapify(minHeap, 0);
    return temp;
}

void insertMinHeap(struct MinHeap* minHeap, int val)
{
    ++minHeap->size;
    int i = minHeap->size - 1;
    while (i && (val < minHeap->harr[(i - 1) / 2])) {
        minHeap->harr[i] = minHeap->harr[(i - 1) / 2];
        i = (i - 1) / 2;
    }
    minHeap->harr[i] = val;
}

void buildMinHeap(struct MinHeap* minHeap)
{
    int n = minHeap->size - 1;
    int i;
    for (i = (n - 1) / 2; i >= 0; --i)
        minHeapify(minHeap, i);
```

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

}

```
struct MinHeap* createAndBuildMinHeap(  
    int len[], int size)  
{  
    struct MinHeap* minHeap = createMinHeap(size);  
    for (int i = 0; i < size; ++i)  
        minHeap->harr[i] = len[i];  
    minHeap->size = size;  
    buildMinHeap(minHeap);  
    return minHeap;  
}
```

```
int minCost(int len[], int n)  
{  
    int cost = 0;  
  
    struct MinHeap* minHeap = createAndBuildMinHeap(len, n);  
  
    while (!isSizeOne(minHeap)) {  
        int min = extractMin(minHeap);  
        int sec_min = extractMin(minHeap);  
  
        cost += (min + sec_min);  
  
        insertMinHeap(minHeap, min + sec_min);  
    }  
  
    return cost;  
}
```

```
int main()  
{  
    int n;  
    cin >> n;  
    int arr[n];  
    for(int i = 0; i < n; i++)  
        cin >> arr[i];
```

TCS NQT Solved Paper - 12th Sept 2021 [Slot 2]

```
int size = sizeof(arr) / sizeof(arr[0]);
cout << minCost(arr, size);
return 0;
}
```