

TCS SAMPLE CODING QUESTIONS

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

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](#)[C++](#)[Java](#)[Python](#)

Run

```
#include <stdio.h>
int main()
{
    int n, j = 0;
    scanf("%d", &n);
    int a[n];
    for (int i = 0; i < n; i++)
    {
        scanf("%d", &a[j]);
        if (a[j] != 0)
        {
            j++;
        }
    }
    for (int i = 0; i < j; i++)
    {
        printf("%d ", a[i]);
    }
    return 0;
}
```

TCS NQT Coding Question 2023 – September Day 1 – Slot 1

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-

$1 \leq N \leq 100$

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”.

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Run

```
#include<stdio.h>
#include<math.h>
int main()
{
    int n;
    scanf("%d", &n);
    int k = (1 << (int)(log2(n) + 1)) - 1;
    printf("%d", n ^ k);
    return 0;
}
```

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.

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Run

```
#include<stdio.h>
#include<string.h>
#define MAX_LENGTH 4
int main()
{
    char s[MAX_LENGTH];
    scanf("%s", s);

    int a, ans = 0;
    scanf("%d", &a);

    // Map weekdays to their corresponding values
    char weekdays[][MAX_LENGTH] = {
        "mon", "tue", "wed", "thu", "fri", "sat", "sun"
    };
    int values[] = {6, 5, 4, 3, 2, 1, 0};
```

```

// Find the corresponding value for the input weekday
int mapSize = sizeof(weekdays) / sizeof(weekdays[0]);
int m = -1;
for (int i = 0; i < mapSize; i++) { if (strcmp(s, weekdays[i]) == 0) { m = values[i]; break; } } if (m != -1) {
// Calculate the answer if (a - m >= 1) {
    ans = 1 + (a - m) / 7;
}
printf("%d", ans);

return 0;
}

```

TCS NQT Coding Question Day 1 Slot 2 – Question 2

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.

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Run

```
#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--;
        }
    }
}

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;
}
```

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

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Run

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

```
int main() {
```

```

int n, c = 0, a, m = INT_MIN;
scanf("%d", &n);
while (n--) {
    scanf("%d", &a);
    if (a >= m) {
        m = a;
        c++;
    }
}
printf("%d", c);
return 0;
}

```

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.

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Run

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

int main() {
    char s[100];
    scanf("%s", s);
    int p = 1;
    for (int i = 0; i < strlen(s); i++) {
        p *= (s[i] - '0');
    }
    printf("%d", p);
    return 0;
}
```

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 1:

Input :

bbbbaaababa -> 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.

Example 2:**Input :**

abbbaabbb -> Value of str

5 -> Value of L

Output:

2 -> Maximum number of a's

Explanation:

From the input given above,

Dividing the string into sets of 5 characters each.

Set 1: {a,b,b,b,b}

Set 2: {a,a,b,b,b}

Among both the sets, set 2 has more number of a's. The number of a's in set 2 is 2.

Hence, the output is 2.

Constraints:

1<=L<=10

1<=N<=50

The input format for testing

The candidate has to write the code to accept two inputs separated by a new line.

First input- Accept string that contains character a and b only

Second input- Accept value for N(Positive integer number)

The output format for testing

The output should be a positive integer number or print the message(if any) given in the problem statement.(Check the output in Example 1, Example 2).

[C](#)

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Run

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

```

int main() {
    char str[100];
    scanf("%s", str);
    int n;
    scanf("%d", &n);
    int max = 0, count = 0;
    for (int i = 0; i < strlen(str); i++) { if (i % n == 0) { if (count > max)
        max = count;
        count = 0;
    }
    if (str[i] == 'a')
        count++;
}
if (count > max)
    max = count;
printf("%d\n", max);
return 0;
}

```

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 1:

Input :

4 -> Value of N(No. of members)

Output :

12 -> Possible ways of seating the members

Explanation:

2 members should always be next to each other.

So, 2 members can be in $2! \text{ways}$

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.

Example 2:

Input:

10 -> Value of N(No. of members)

Output :

725760 -> 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 $(10-1)!$ Ways. (1 is subtracted because the previously selected two members will be considered as a single member now).

So, total possible ways 10 members can be seated around a round table is

$2*362880 = 725760$ ways.

Hence, output is 725760.

The input format for testing

The candidate has to write the code to accept one input

First input – Accept value of number of N(Positive integer number)

The output format for testing

The output should be a positive integer number or print the message(if any) given in the problem statement(Check the output in example 1, example2)

Constraints :

2<=N<=50

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Run

```
#include<stdio.h>
int main() {
    int n;
    scanf("%d", &n);
    int fact[n + 1];
    fact[0] = 1;
    for (int i = 1; i <= n; i++) {
        fact[i] = fact[i - 1] * i;
    }
    printf("%d\n", fact[n - 1] * 2);
    return 0;
}
```

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 1:**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.

Example 2:**Input :**

1234 -> Value of N

2 -> Value of R

Output :

2 -> Possible ways to fill the cistern

Explanation:

Here, the number N=1234

1. Sum of the digits of N: $1+2+3+4 = 10$
2. Repeat step 2 'R' times i.e. 2 times $(1+2+3+4)+(1+2+3+4) = 10+10=20$
3. Add digits of 20 as we need a single digit. $2+0=2$

Hence, the output is 2.

Constraints:

$0 < N \leq 1000$

$0 \leq R \leq 50$

The Input format for testing

The candidate has to write the code to accept 2 input(s)

First input- Accept value for N (positive integer number)

Second input: Accept value for R(Positive integer number)

The output format for testing

The output should be a positive integer number or print the message (if any) given in the problem statement. (Check the output in Example 1, Example 2).

[C](#)

[C++](#)

[Java](#)

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Run

```
#include<stdio.h>
#include<string.h>
int main() {
    char s[100];
    scanf("%s", s);
    int n, sum = 0;
    scanf("%d", &n);
    for (int i = 0; i < strlen(s); i++) { sum += (s[i] - '0'); } sum *= n; sprintf(s, "%d", sum); while (strlen(s) > 1) {
        sum = 0;
        for (int i = 0; i < strlen(s); i++) {
            sum += (s[i] - '0');
```

```
    }
    sprintf(s, "%d", sum);
}
printf("%s", s);
return 0;
}
```

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 1:

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.

Fine will be collected from 5,3 and 7 with an amount of 200 each.

Hence, the output = 600.

Example 2:**Input :**

5 -> Value of N

{2,5,1,6,8} -> a[], elements a[0] to a[N-1], during input each element is separated by new line

3 -> Value of D i.e. date

300 -> Value of X i.e. fine

Output :

900 -> total fine collected

Explanation:

Date D=3 means only odd number vehicles with are allowed.

Fine will be collected from 2,6 and 8 with an amount of 300 each.

Hence, the output = 900

Constraints:

- $0 < N \leq 100$
- $1 \leq a[i] \leq 9$

- $1 \leq D \leq 30$
- $100 \leq X \leq 5000$

The input format for testing

The candidate has to write the code to accept 4 input(s).

First input – Accept for N(Positive integer) values ($a[]$), where each value is separated by a new line.

Third input – Accept value for D(Positive integer)

Fourth input – Accept value for X(Positive integer)

The output format for testing

The output should be a positive integer number (Check the output in Example 1, Example e) if no fine is collected then print "0".

[C](#)

[C++](#)

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Run

```
#include <stdio.h>
int main() {
    int n;
    scanf("%d", &n);
    int arr[n];
    for (int i = 0; i < n; i++)
        scanf("%d", &arr[i]);
    int d, x;
    scanf("%d %d", &d, &x);
    int countEven = 0, countOdd = 0;
    for (int i = 0; i < n; i++) {
        if (arr[i] % 2 == 0)
            countEven++;
        else
            countOdd++;
    }
    if (d % 2 != 0) {
        if (countEven == 0)
            printf("0\n");
        else
            printf("%d\n", x);
    }
}
```

```
    printf("%d\n", countEven * x);
} else {
    if (countOdd == 0)
        printf("0\n");
    else
        printf("%d\n", countOdd * x);
}
return 0;
}
```

Day 2 slot 1-Question 2

```
n=int(input("Enter number"))
a=[]
for i in range(n):
    a.append(int(input()))
d=int(input("Enter date"))
fine=int(input("Enter fine"))
count=0
if d%2==0:
    temp=1
else:
    temp=0
for i in a:
    if temp==1:
        if i%2!=0:
            count+=fine
    else:
        if i%2==0:
            count+=fine
print(count)
```

TCS NQT Programming Logic Questions and Answers

C Programming

1. What will be the output of the following C code?

```
1.     #include <stdio.h>
2.     int main()
3.     {
4.         char buf[12];
5.         stderr = stdin;
6.         fscanf(stderr, "%s", buf);
7.         printf("%s\n", buf);
8.     }
```

- a) Compilation error
- b) Undefined behaviour
- c) Whatever user types
- d) None of the mentioned

Answer: c

2. What will be the output of the following C code if the current system date is 6/22/2017?

```
#include<stdio.h>
#include<stdlib.h>
#include<time.h>
int main()
{
    time_t ct;
    time(&ct);
    struct tm *mt=localtime(&ct);
    printf("%d\n",mt->tm_mon+2);
}
```

- a) 8
- b) 7
- c) 5
- d) 6

Answer: b

Explanation: Since the given date is 22nd of June, 2017. Since June is the sixth month of the year, the output will be 5. (0-Jan, 1-Feb, 2-March, 4-April, 5-May, 6-June.....) <https://www.freshersnow.com/placement-papers-download/>

3. What will be the output of the following C code?

```
1.     #include <stdio.h>
2.     #include <math.h>
3.     int main()
4.     {
5.         int i = 10;
6.         printf("%f\n", log10(i));
7.         return 0;
8.     }
```

- a) Compile time error
- b) 1.000000
- c) 2.302585
- d) None of the mentioned

Answer: b

CPP

4. What will be the output of the following C++ code?

```

1. #include <iostream>
2. using namespace std;
3. int operate (int a, int b)
4. {
5.     return (a * b);
6. }
7. float operate (float a, float b)
8. {
9.     return (a / b);
10. }
11. int main ()
12. {
13.     int x = 5, y = 2;
14.     float n = 5.0, m = 2.0;
15.     cout << operate (x, y);
16.     cout << operate (n, m);
17.     return 0;
18. }

```

- a) 119
- b) 102.5
- c) 123.4
- d) 128.4

Answer: b

Explanation: In this program, We are overloading the function and getting the output as 10 and 2.5 by division and multiplication.

Output:

```

$ g++ call3.cpp
$ a.out
102.5

```

5. What does this template function indicates?

```

=====
template<class T>
void func(T a)
{
    cout<<a;
}
=====
```

- a) A function taking a single generic parameter and returning a generic type
- b) A function taking a single generic parameter and returning nothing
- c) A function taking single int parameter and returning a generic type
- d) A function taking a single generic parameter and returning a specific non-void type <https://www.freshersnow.com/placement-papers-download/>

Answer: b

Explanation: As the return type of function is void therefore function is not returning anything. Now as the function is taking a template T as its argument which is a general type, therefore, it is accepting a single general type argument.

Java

6. In the following Java code, which code fragment should be inserted at line 3 so that the output will be: “123abc 123abc”?

```
1. StringBuilder sb1 = new StringBuilder("123");
2. String s1 = "123";
3. // insert code here
4. System.out.println(sb1 + " " + s1);
```

- a) sb1.append("abc"); s1.append("abc");
- b) sb1.append("abc"); s1.concat("abc");
- c) sb1.concat("abc"); s1.append("abc");
- d) sb1.append("abc"); s1 = s1.concat("abc");

Answer: d

Explanation: append() is StringBuffer method and concat is String class method. append() is StringBuffer method and concat is String class method.

7. What will be the output of the following Java code?

```
1. class Output
2. {
3.     public static void main(String args[])
4.     {
5.         double x = 3.14;
6.         int y = (int) Math.abs(x);
7.         System.out.print(y);
8.     }
9. }
```

- a) 0
- b) 3

- c) 3.0
- d) 3.1

Answer: b

Data Structures

8. What is the time complexity of the following code?

```
public boolean isBalanced(String exp)
{
    int len = exp.length();
    Stack<Integer> stk = new Stack<Integer>();
    for(int i = 0; i < len; i++)
    {
        char ch = exp.charAt(i);
        if (ch == '(')
            stk.push(i);
        else if (ch == ')')
        {
            if(stk.peek() == null)
            {
                return false;
            }
            stk.pop();
        }
    }
    return true;
}
```

- a) O(logn)
- b) O(n)
- c) O(1)
- d) O(nlogn)

Answer: b

Explanation: All the characters in the string have to be processed, hence the complexity is O(n).

9. What is a time complexity for inserting an alphabet in the tree using hash maps?

- a) O (log n!)
- b) O (n!)

- c) O (n²)
- d) O (1)

Answer: d

Explanation: Suffix tree is also known as PAT tree or position tree. It allows fast string operation. Total time taken for construction of suffix tree is linear to the length of the tree. The time complexity for inserting an alphabet in the tree using hash maps is constant, O (1).

CPP

10. What will be the output of the following C++ code?

```
1.      #include <iostream>
2.      #include <exception>
3.      #include <cstdlib>
4.      using namespace std;
5.      void myterminate ()
6.      {
7.          cerr << "terminate handler called";
8.          abort();
9.      }
10.     int main (void)
11.     {
12.         set_terminate (myterminate);
13.         throw 0;
14.         return 0;
15.     }
```

- a) terminate handler called
- b) aborted
- c) both terminate handler & Aborted
- d) runtime error

Answer: c

Explanation: In this program, We are using set_terminate to abort the program.
Output:

```
$ g++ uce2.cpp
$ a.out
terminate handler called
Aborted
```

Part A

Q.1. Arrange the following in a meaningful sequence :
1. Consultation 2.Illness 3.Doctor 4.Treatment

A. 2,3,1,4,5
C. 4,3,1,2,5

B. 2,3,4,1,5
D. 5,1,4,3,2

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.2. Arrange the following in a logical order:
1.Euphoria 2.Happiness 3.Ambivalence 4.Ecstasy 5.Pleasure

A. 4,1,3,2,5
C. 2,1,3,4,5

B. 3,2,5,1,4
D. 1,4,2,5,3

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

3. Pedro goes either hunting or fishing every day. If it is snowing & windy then Pedro goes hunting. If it is sunny and not windy then Pedro goes fishing. Sometimes it can be snowing and sunny.

Which of the following statements must be true:

- A. If it is not sunny and it is snowing then Pedro goes hunting.
- B. If it is windy and Pedro does not go hunting then it is not snowing.
- C. If it is windy and not sunny then Pedro goes hunting.
- D. If it is windy and sunny then Pedro goes hunting.

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

4. In 1695 about 11,400 doctors who had treated plague sufferers died and about 23,670 doctors who had not treated plague sufferers died. On the basis of these figures, it can be concluded that it was more dangerous for doctors not to participate in the treatment of plague sufferers than it was for them to participate in it.

Which of the following statements would cast most doubt on the conclusion above?

- A. Expressing the difference between the numbers of deaths among doctors who had treated plague sufferers and doctors who had not treated plague suffers as a percentage of the total number of deaths.
- B. Examining the death rates for doctors in the years before and after 1695.
- C. Separating deaths due to natural causes during the treatment of plague suffers from deaths caused by other causes.
- D. Comparing death rates per thousand members of each group rather than comparing total numbers of deaths.

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

5. There are 900 bottles to be filled. Jim and Molly working independently but at the same time take 30 minutes to fill the bottles. How long should it take Molly working by herself to fill the bottles?

Statement 1 -

Molly fills half as many bottles as Jim.

Statement 2 -

Jim would take 45 minutes by himself.

Which of the statements above make it possible to answer the question.

- A. Statement 1 alone is sufficient, but statement 2 alone is not sufficient.
- B. Statement 2 alone is sufficient, but statement 1 alone is not sufficient.

C. Both statements together are sufficient, but neither statement alone is sufficient.

D. Each statement alone is sufficient.

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

6. If A is B's brother, B is C's sister and C is D's father, D is A's...

(A) Brother (B) Sister (C) Nephew (D) Cannot be determined

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

7. P is brother of Q. R is the sister of Q. How P is related to R?

A. Brother (B) Sister (C) Uncle (D) Data inadequate

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

8. Aparna's mother is the daughter of Vishnu's sister. How is Vishnu's mother related to Aparna's mother?

AMother (B) Daughter (C) Sister (D) Grandmother

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

9. Q's mother is sister of P and daughter of M. S is daughter of P and sister of T. How is M related to T?

(A) Father (B) Grandfather (C) Grandmother (D) Either grandfather or grandmother

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

10. Ankit is the son of Zubin. Manju is the daughter of Anil. Sheela is the mother of Manju. Mohan is the brother of Manju. How is Mohan related to Sheela?

A. Brother (B) Father (C) Son (D) Cannot be determined

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

11. Prakash is the son of Pramod. Neha is the daughter of Abhishek. Ruchi is the mother of Neha. Awadhesh is the brother of Neha. How is Awadhesh related to Ruchi?

(1) Brother (2) Father (3) Son (4) Cannot be determined (5) None of these

(Answer: 3; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

12. Pointing to a photograph, Amar said, "I have no brother or sister but that man's father is my father's son." Whose photograph was it?

A. His son's (B) His father's (C) His nephew's (D) His own

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

(Directions for Questions 13 to 17):

A is the son of P. B is the P's sister. B has a son Q and a daughter C. R is the maternal uncle of Q.

Q.13. How is A related to Q?

(A) Cousin Brother (B) Nephew (C) Brother (D) Uncle

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.14. How is C related to R?

(A) Daughter (B) Nephew (C) Niece (D) Sister

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.15. What is the relationship of P with C and Q?

(A) Paternal Uncle (B) Father (C) Brother (D) Maternal Uncle

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.16. How many nephews does R have?

- (A) 2 (B) 1 (C) 3 (D) 5

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.17. How many brothers does B have?

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

(Answer: 3; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

(Directions for Questions 18 to 20)

Read the following information carefully and answer the questions given below:

- i) 'A = B' means 'A is the son of B'.
- ii) 'A + B' means 'A is the brother of B'.
- iii) 'A x B' means 'A is the sister of B'.
- iv) 'A ÷ B' means 'A is the mother of B'
- v) 'A – B' means 'A is the wife of B'

Q.18. What does P + R ÷ Q indicate?

- (A) P is the nephew of Q (B) P is the uncle of Q (C) P is the brother of Q (D) P is the father of Q

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.19. What does P = R – Q indicate?

- (A) Q is the uncle of P (B) Q is the son of P (C) Q is the father of P (D) Q is the brother of P

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.20. What does P x R ÷ Q indicate?

- (A) Q is the niece of P
(B) P is the sister of Q
(C) Q is the daughter of P
(D) P is the aunt of Q

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.21 If '+' means '×', '×' means '÷', '÷' means '–' and '–' means '+' what is the value of—

$17 + 15 - 135 \times 9 \div 70$?

- (A) 270
(B) 240
(C) 170
(D) 200

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.22. Four girls are sitting on a bench to be photographed.

Shikha is to the left of Reena. Manju is to the right of Reena. Rita is between Reena and Manju.

Who would be second from the left in the photograph?

- (a) Reena (b) Shikha (c) Manju (d) Rita

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.23. There are five different houses, A to E in a row. A is to the right of B and E is to the left of C and right of A. B is to the right of D.

Which of the houses is in the middle?

- (a) A (b) B (c) D (d) E

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

For Question 24- 27 study the given information carefully and answer the questions

(1) A, B, C, D, E, F and G are sitting on a wall and all of them are facing east.

(2) C is on the immediate right to D.

(3) B is at an extreme end and has E as his neighbour.

(4) G is between E and F.

(5) D is sitting third from the south end.

24. Who is sitting to the right of E?

- (a) A (b) C (c) D (d) None of these

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

25. Which of the following pairs of people are sitting at the 2extreme ends?

- (a) AB (b) AE (c) CB (d) FB

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

26. Name the person who should change places with C such that he gets the third place from the north end?

- (a) E (b) F (c) C (d) G

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

27. Immediately between which of the following pairs of people are sitting?

- (a) AC (b) AF (c) CE (d) CF (E) None of these

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.28 Mr. A, Miss.B, Mr.C and Miss.D are sitting around a table and discussing their trades.

- (1)Mr A sits opposite to cook.
 - (2)Miss B sits right to the barber.
 - (3)The washer man is on the left of the tailor.
 - (4)Miss D sits opposite to Mr C.

What are the trades of A and B?

- (a) Tailor and Barber (c) Barber and Cook
 (b) Tailor and Cook (d) Washer man and Cook.

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.29 A group of eight members sit in a circle. D is between A and F and is opposite to G. E is to the right of A but on the left of C, whose right hand neighbour is G. B enjoys having H to his left and F to his right.

Find the member who is diagonally opposite to A?

- (a) B (b) F (c) G (d) H

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Ans-D

Q.30 Five children are sitting in a row. S is sitting next to P but not T. K is sitting next to R who is sitting on extreme left and T is not sitting next to K. Who are sitting adjacent to S?

- (a) K and P (b) R and P (c) only C d) P and T

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Part B

Q1-Look at this series: 544, 509, 474, 439, ... What number should come next?

- a. 404
 - b. 414
 - c. 420
 - d. 445

(Answer: a; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q 2-Look at this series: 201, 202, 204, 207, . . . What number should come next?

- a. 205
 - b. 208
 - c. 210
 - d. 211

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q3-80, 10, 70, 15, 60, . . . What number should come next?

- a. 20
 - b. 25
 - c. 30
 - d. 50

(Answer: a; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q4-36 34 30 28 24 What number should come next?

- a. 20
- b. 22
- c. 23
- d. 26

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.5 Look at this series: 14, 28, 20, 40, 32, 64 What number should come next?

- a. 52
- b. 56
- c. 96
- d. 128

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q6-8 Choose which pair of numbers comes next.

Q.6 84 78 72 66 60 54 48

- a. 44 34
- b. 42 36
- c. 42 32
- d. 40 34
- e. 38 32

(Answer: b; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: easy)

Q.7 3 8 13 18 23 28 33

- a. 39 44
- b. 38 44
- c. 38 43
- d. 37 42
- e. 33 38

(Answer: c; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.8 . 20 20 17 17 14 14 11

- a. 8 8
- b. 11 11
- c. 11 14
- d. 11 8

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.9 . Look at this series: 664, 332, 340, 170, __, 89,...

What number should fill the blank?

- a. 85
- b. 97
- c. 109
- d. 178

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.10 . Look at this series: U32, V29, __, X23, Y20, . . .

What number should fill the blank?

- a. W26
- b. W17
- c. Z17
- d. Z26

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.11. Look at this series: J14, L16, __, P20, R22, . . .

What number should fill the blank?

- a. S24
- b. N18
- c. M18
- d. T24

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.12 . Look at this series: F2, __, D8, C16, B32, . . .

What number should fill the blank?

- a. A16
- b. G4
- c. E4
- d. E3

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.13. Look at this series: XXIV, XX, ___, XII, VIII, . . .

What number should fill the blank?

- a. XXII
- b. XIII
- c. XVI
- d. IV

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.14. QPO NML KJI ____ EDC

- a. HGF
- b. CAB
- c. JKL
- d. GHI

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.15. JAK KBL LCM MDN ____

- a. OEP
- b. NEO
- c. MEN
- d. PFQ

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.16. ELFA GLHA ILJA ____ MLNA

- a. OLPA
- b. KLMA
- c. LLMA
- d. KLLA

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.18 . FAG GAF HAI IAH ____

- a. JAK
- b. HAL
- c. HAK
- d. JAI

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.19. BCB DED FGF HIH ____

- a. JJK
- b. HJH
- c. IJI
- d. JHJ

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.20. Tanya is older than Eric.

Cliff is older than Tanya.

Eric is older than Cliff.

If the first two statements are true, the third statement is

- a. true.
- b. false.
- c. uncertain.
- d. illogical

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.21. During the past year, Josh saw more movies than Stephen. Stephen saw fewer movies than Darren. Darren saw more movies than Josh.

If the first two statements are true, the third statement is

- a. true.
- b. false.
- c. uncertain.
- d. illogical

(Answer: C, Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.22 Oat cereal has more fiber than corn cereal but less fiber than bran cereal. Corn cereal has more fiber than rice cereal but less fiber than wheat cereal. Of the three kinds of cereal, rice cereal has the least amount of fiber.

If the first two statements are true, the third statement is

- a. true.
- b. false.
- c. uncertain.
- d. illogical

(Answer: A, Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.23. On the day the Barton triplets are born, Jenna weighs more than Jason. Jason weighs less than Jasmine. Of the three babies, Jasmine weighs the most.

If the first two statements are true, the third statement is

- a. true.
- b. false.
- c. uncertain.
- d. illogical

(Answer: C, Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.24. Taking the train across town is quicker than taking the bus. Taking the bus across town is slower than driving a car. Taking the train across town is quicker than driving a car.

If the first two statements are true, the third statement is

- a. true.
- b. false.
- c. uncertain.
- d. illogical

(Answer: C, Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.25. All Lamels are Signots with buttons. No yellow Signots have buttons. No Lamels are yellow.

If the first two statements are true, the third statement is

- a. true.
- b. false.
- c. uncertain.
- d. illogical

(Answer: A, Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.26. The hotel is two blocks east of the drugstore. The market is one block west of the hotel. The drugstore is west of the market.

If the first two statements are true, the third statement is

- a. true.
- b. false.
- c. uncertain.
- d. illogical

(Answer: A, Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Ans:-A easy

Q.27. Children are in pursuit of a dog whose leash has broken. James is directly behind the dog. Ruby is behind James. Rachel is behind Ruby. Max is ahead of the dog walking down the street in the opposite direction. As the children and dog pass, Max turns around and

joins the pursuit. He runs in behind Ruby. James runs faster and is alongside the dog on the left. Ruby runs faster and is alongside the

dog on the right. Which child is directly behind the dog?

- a. James
- b. Ruby
- c. Rachel
- d. Max

(Answer: D, Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.28. A four-person crew from Classic Colors is painting Mr. Field's house. Michael is painting the front of the house. Ross is in the alley

behind the house painting the back. Jed is painting the window frames on the north side, Shawn is on the south. If Michael switches places with Jed, and Jed then switches places with Shawn, where is Shawn?

- a. in the alley behind the house
- b. on the north side of the house
- c. in front of the house
- d. on the south side of the house

(Answer: D, Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.29. In a four-day period—Monday through Thursday—each of the following temporary office workers worked only one day, each a different day. Ms. Johnson was scheduled to work on Monday, but she traded with Mr. Carter, who was originally scheduled to work on Wednesday. Ms. Falk traded with Mr. Kirk, who was originally scheduled to work on Thursday. After all the switching was done, who worked on Tuesday?

- a. Mr. Carter
- b. Ms. Falk
- c. Ms. Johnson
- d. Mr. Kirk

(Answer: D, Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.30. The high school math department needs to appoint a new chairperson, which will be based on seniority. Ms. West has less seniority than Mr. Temple, but more than Ms. Brody. Mr. Rhodes has more seniority than Ms. West, but less than Mr. Temple. Mr. Temple doesn't want the job. Who will be the new math department chairperson?

- a. Mr. Rhodes
- b. Mr. Temple
- c. Ms. West
- d. Ms. Brody

(Answer: D, Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.1 What least number must be added to 859622, to get a number exactly divisible by 456?

- [A] 485
- [B] 394
- [C] 467
- [D] 387

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.2 The ratio between two numbers is 4:5 and their sum is 540. The greater of the two numbers is?

- [A] 360
- [B] 240
- [C] 300
- [D] 700

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.3 $\frac{1}{4}$ of a number subtracted from $\frac{1}{3}$ of the number gives 12. The Number is :

- [A] 144
- [B] 188
- [C] 196
- [D] 225

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.4 Three fifth of one fourth of a number is 90. The number is?

- [A] 400
- [B] 600
- [C] 800
- [D] 500

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.5 The sum of two numbers is 60 and their difference is 43 .The difference of there square is?

- [A] 2580
- [B] 2860
- [C] 3210
- [D] 2210

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.6 The ratio between the present ages of P and Q is 6 : 7. If Q is 4 years old than P. What will be the ratio of the ages of P and Q after 4 years?

- [A] 3 : 4
- [B] 3 : 5
- [C] 4 : 3
- [D] None of these

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.7 The Average age of a class of 22 students is 21 years. The average increases by 1 when the teacher's age also included. What is the age of the teacher?

- [A] 44

[B] 43

[C] 41

[D] 40

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.8 At present, the ratio between the ages of Arun and Deepak is 4 : 3. After 6 years, Arun's age will be 26 years. What is the age of Deepak at present?

[A] 12 years

[B] 15 years

[C] 19.5 years

[D] 21 years

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.9 A father is twice as old as his son. 20 years ago, the age of the father was 12 times the age of the son. The present age of the father (in years) is

[A] 44

[B] 32

[C] 22

[D] 45

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.10 Ten years ago, Kumar was thrice as old as Selva was but 10 years hence, he will be only twice as old. Find Kumar's present age.

[A] 60 years

[B] 80 years

[C] 70 years

[D] 76 years

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.11 The ratio between the largest and the breadth of a rectangular field is 3 : 2. If only the length is increased by 5 metres, the new area of the field will be 2600 sq. metres. What is the breadth of the rectangular field?

[A] 40 metres

[B] 60 metres

[C] 65 metres

[D] Cannot be determined

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Diff)

Q.12 If the area of a rectangular plot increases by 30% while its breadth remains same, what will be the ratio of the areas of new and old figures?

[A] 1 : 3

[B] 3 : 1

[C] 4 : 7

[D] 10 : 13

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.13. The ratio between the length and the breadth of a rectangular park is 3 : 2. If a man cycling along the boundary of the park at the speed of 12 km/hr completes one round in 8 minutes, then the area of the park (in sq. m) is:

[A] 15360

[B] 153600

[C] 30720

[D] 30720

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.14 In what ratio must water be mixed with milk to gain 16.66% on selling the mixture at cost price?

[A] 1 : 6

[B] 6 : 1

[C] 2 : 3

[D] 4 : 3

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.15 In what ratio must tea Rs. 62 per kg be mixed with tea at Rs. 72 per kg so that the mixture must be worth Rs. 64.50 per kg?

[A] 3 : 1

[B] 3 : 2

[C] 4 : 3

[D] 5 : 3

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.16 Two friends A and B run around a circular track of length 510 metres, starting from the same point, simultaneously and in the same direction. A who runs faster laps B in the middle of the 5th round. If A and B were to run a 3 km race long race, how much start, in terms of distance, should A give B so that they finish the race in a dead heat?

A. 545.45 metres

B. 666.67 metres

C. 857.14 metres

D. Cannot be determined

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.17 Yana and Gupta leave points x and y towards y and x respectively simultaneously and travel in the same route. After meeting each other on the way, Yana takes 4 hours to reach her destination, while Gupta takes 9 hours to reach his destination. If the speed of Yana is 48 km/hr, what is the speed of Gupta?

A.72 kmph

B.32 mph

C.20 mph

D.None of these

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.18 Twenty six men - 1,2,3,...,25 and 26 participate in 10km running race on a circular track of length 100m. All of them start at the same time, from the same point and run in the same direction. Their speeds, taken in the order, are in increasing AP. The time taken by 26 to meet 1, for the first time after they start is 20 sec and the time taken by 13 to complete the race is 52 minutes and 5 seconds. Find the time taken (in seconds), for all the twenty six men to meet for the first time at the starting point.

A.1000

B.500

C.625

D.400

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.19 A man driving his bike at 24 kmph reaches his office 5 minutes late. Had he driven 25% faster on an average he would have reached 4 minutes earlier than the scheduled time. How far is his office?

- A.24 km
- B.72 km
- C.18 km
- D.Data Insufficient

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.20 Two motorists Anil and Sunil are practicing with two different sports car; Ferrari and Maclarun, on the circular racing track, for the car racing tournament to be held next month. Both Anil and Sunil start from the same point on the circular track. Anil completes one round of the track in 1 min and Sunil takes 2 min to complete a round. While Anil maintains speed for all the rounds, Sunil halves his speed after the completion of each round. How many times Anil and Sunil will meet between 6th round and 9th round of Sunil (6th and 9th round is excluded)? Assume that the speed of Sunil remains steady throughout each round and changes only after the completion of that round.

- A.382
- B.347
- C.260
- D.None of these

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.21 How many combinations of students are possible if the group is to consist of exactly 3 freshmen?

- A.5000
- B.4550
- C.4000
- D.3550

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.22 How many combinations of students are possible if the group is to consist of all members of the same class?

- A.20
- B.25
- C.30
- D.35

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.23 Six boxes are numbered 1,2,34,5 and 6. Each box must contain either a white ball or a black ball. At least one box must contain a black ball and boxes containing black balls must be consecutively numbered. find the total number of ways of placing the balls.

- A.15
- B.20
- C.21
- D.36

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.24 In how many ways can 6 green toys and 6 red toys be arranged, such that 2 particular red toys are never together whereas 2 particular green toys are always together?

- A. $11! \times 2!$
- B. $9! \times 90$
- C. $4 \times 10!$
- D. $18 \times 10!$

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.25 The number of ways of arranging n students in a row such that no two boys sit together and no two girls sit together is m ($m > 100$). If one more student is added, then number of ways of arranging as above increases by 200%. The value of n is

- A.12
- B.8
- C.9
- D.10

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.26 There are 10 seats around a circular table. If 8 men and 2 women have to be seated around a circular table, such that no two women have to be separated by at least one man. If P and Q denote the respective number of ways of seating these people around a table when seats are numbered and unnumbered, then P : Q equals

- A.9 : 1
- B.72 : 1
- C.10 : 1
- D.8 : 1

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Q.27 A number X is chosen at random from the numbers -3, -2, -1, 0, 1, 2, 3. What is the probability that $|X| < 2$

- A.5/7
- B.3/7
- C.3/5
- D.1/3

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.28 Two brother X and Y appeared for an exam. The probability of selection of X is $1/7$ and that of B is $2/9$. Find the probability that both of them are selected.

- A.1/63
- B.2/35
- C.2/63
- D.9/14

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q.29 What is the probability of getting at least one six in a single throw of three unbiased dice?

- A.1/6
- B.125/216
- C.1/36
- D. 91/216

(Mod) (Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Q.30 A bag contains 3 white balls and 2 black balls. Another bag contains 2 white and 4 black balls. A bag and a ball are picked random. The probability that the ball will be white is:

- A.7/11
- B.7/30
- C.5/11
- D.7/15

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Part B

1. There are two sections A and B of a class, consisting of 36 and 44 students' respectively. If the average weight of section A is 40kg and that of section B is 35kg, find the average weight of the whole class.

- A.30 kg
- B.35 kg
- C.42.5 kg
- D.37.25 kg

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

2. Distance between two stations A and B is 778km. A train covers the journey from A to B at 84km per hour and returns back to A with a uniform speed of 56km per hour. Find the average speed of train during the whole journey.

- A.60 km/hr
- B.30.5 km/hr
- C.57 km/hr
- D.67.2 km/hr

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

3. The average of 50 numbers is 30. If two numbers, 35 and 40 are discarded, then the average of the remaining numbers is nearly:

- A.28.32
- B.29.68
- C.28.78
- D.29.27

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

4. The average wages of a worker during a fortnight comprising 15 consecutive working days was Rs.90 per day. During the first 7 days, his average wages was Rs.87/day and the average wages during the last 7 days was Rs.92 /day. What was his wage on the 8th day?

- A.83
- B.92
- C.90
- D.97

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

5. The average temperature on Wednesday, Thursday and Friday was 25°. The average temperature on Thursday, Friday and Saturday was 24°. If the temperature on Saturday was 27°, what was the temperature on Wednesday?

A.24
B.21
C.27
D.30

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

6. The difference between two angles of a triangle is 24°. The average of the same two angles is 54°. Which one of the following is the value of the greatest angle of the triangle?

A.45
B.60
C.66
D.72

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

7. The average age of a family of 5 members is 20 years. If the age of the youngest member be 10 years then what was the average age of the family at the time of the birth of the youngest member?

A.13.5
B.14
C.15
D.12.5

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

8. 40% of the employees in a factory are workers. All the remaining employees are executives. The annual income of each worker is Rs. 390. The annual income of each executive is Rs. 420. What is the average annual income of all the employees in the factory together?

A.390
B.405
C.408
D.415

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

9. The average price of 10 books is Rs.12 while the average price of 8 of these books is Rs.11.75. Of the remaining two books, if the price of one book is 60% more than the price of the other, what is the price of each of these two books?

A.Rs. 5, Rs.7.50
B.Rs. 8, Rs. 12
C.Rs. 10, Rs. 16
D.Rs. 12, Rs. 14

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

10. Of the three numbers, the first is twice the second and the second is twice the third. The average of the reciprocal of the numbers is $\frac{7}{72}$. The numbers are:

A. 16, 8, 4
B. 20, 10, 5
C. 24, 12, 6
D. 36, 18, 9

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

11. The average monthly salary of 12 workers and 3 managers in a factory was Rs. 600. When one of the manager whose salary was Rs. 720, was replaced with a new manager, then the average salary of the team went down to 580. What is the salary of the new manager?

- A.570
- B.420
- C.690
- D.640

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

12. In an acoustics class, 120 students are male and 100 students are female. 25% of the male students and 20% of the female students are engineering students. 20% of the male engineering students and 25% of the female engineering students passed the final exam. What percentage of engineering students passed the exam?

- A.5%
- B.10%
- C.16%
- D.22%

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

13. If b equals 10% of a and c equals 20% of b, then which one of the following equals 30% of c?

- A.0%
- B.5%
- C.10%
- D.40%

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

14. Two students appeared at an examination. One of them secured 9 marks more than the other and his marks was 56% of the sum of their marks. The marks obtained by them are:

- A.39, 30
- B.41, 32
- C.42, 33
- D.43, 34

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

15. In an election contested by two parties, Party D secured 12% of the total votes more than Party R. If party R got 132,000 votes, by how many votes did it lose the election?

- A.300,000
- B.168,000
- C.36,000 D.24,000

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

16. A vendor sells 60 percent of apples he had and throws away 15 percent of the remainder. Next day he sells 50 percent of the remainder and throws away the rest. What percent of his apples does the vendor throw?

- A. 17
- B. 23
- C. 77
- D. None of these

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

17. When processing flower-nectar into honeybees' extract, a considerable amount of water gets reduced. How much flower-nectar must be processed to yield 1kg of honey, if nectar contains 50% water, and the honey obtained from this nectar contains 15% water?

- A.1.5 kgs
- B.1.7 kgs
- C.3.33 kgs
- D.None of these

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

18. 30% of the men are more than 25 years old and 80% of the men are less than or equal to 50 years old. 20% of all men play football. If 20% of the men above the age of 50 play football, what percentage of the football players are less than or equal to 50 years?

- A.15%
- B.20%
- C.80%
- D.70%

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

19. B as a percentage of A is equal to A as a percentage of $(A + B)$. Find B as a percentage of A.

- A.62%
- B.73%
- C.41%
- D.57%

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

20. If the price of petrol increases by 25% and Raj intends to spend only an additional 15% on petrol, by how much % will he reduce the quantity of petrol purchased?

- A.10%
- B.12%
- C.8%
- D.6.67%

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

21. A candidate who gets 20% marks fails by 10 marks but another candidate who gets 42% marks gets 12% more than the passing marks. Find the maximum marks.

- A.50
- B.100
- C.150
- D.200

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

22. Peter got 30% of the maximum marks in an examination and failed by 10 marks. However, Paul who took the same examination got 40% of the total marks and got 15 marks more than the passing marks. What were the passing marks in the examination?

- A.35
- B.250
- C.75
- D.85

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

23. Each person in a group of 110 investors has investments in either equities or securities or both. Exactly 25% of the investors in equities have investments in securities, and exactly 40% of the investors in securities have investments in equities. How many have investments in equities?

- A.65
- B.80
- C.120
- D.135

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

24.Which of the following has most number of divisors?

- A.99
- B.101
- C.176
- D.182

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

25.If each of the three nonzero numbers a , b , and c is divisible by 3, then abc must be divisible by which one of the following the numbers?

- A.8
- B.27
- C.81
- D.121

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

26.A number when divided by a divisor leaves a remainder of 24. When twice the original number is divided by the same divisor, the remainder is 11. What is the value of the divisor?

- A.13
- B.59
- C.35
- D.37

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

27.The product of 4 consecutive even numbers is always divisible by:

- A. 600
- B.768
- C.864
- D.384

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

28.Let n be the number of different 5 digit numbers, divisible by 4 with the digits 1, 2, 3, 4, 5 and 6, no digit being repeated in the numbers. What is the value of n ?

- A.144
- B.168
- C.192
- D.None of these

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

29.Three gold coins of weight 780gm, 840gm and 960gm are cut into small pieces, all of which have the equal weight. Each piece must be heavy as possible. If one such piece is shared by two persons, then how many persons are needed to give all the pieces of gold coins?

- A.86
- B.70
- C.43
- D.35

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

30.Each of X alarm tolls at regular intervals. All of them tolls together twelve times a day. No two alarm at equal intervals of time. If each alarm tolls after a whole number of minutes, what is the maximum possible value of X?

- A.14
- B.16
- C.18
- D.20

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Part A

Three of the words will be in the same classification; the remaining one will not be. Your answer will be the one word that does NOT belong in the same classification as the others.

1. Which word does NOT belong with the others?

- a. leopard
- b. cougar
- c. elephant
- d. lion

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

2. Which word does NOT belong with the others?

- a. couch
- b. rug
- c. table
- d. chair

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

3. Which word does NOT belong with the others?

- a. tape
- b. twine
- c. cord
- d. yarn

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

4. Which word does NOT belong with the others?

- a. guitar
- b. flute
- c. violin
- d. cello

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

5. Which word does NOT belong with the others?

- a. tulip
- b. rose
- c. bud
- d. daisy

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

6. Which word does NOT belong with the others?

- a. tire
- b. steering wheel
- c. engine
- d. car

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

7 Which word does NOT belong with the others?

- a. parsley
- b. basil
- c. dill
- d. mayonnaise

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

8. Which word does NOT belong with the others?

- a. branch
- b. dirt
- c. leaf
- d. root

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

9. Which word does NOT belong with the others?

- a. unimportant
- b. trivial

- c. insignificant
- d. familiar

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

10. Which word does NOT belong with the others?

- a. book
- b. index
- c. glossary
- d. chapter

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Directions (Qs. 11 – 20) Find the analogies from amongst the options which is similar to the pair given in Bold

11. **BINDING** : BOOK

- a. criminal : gang
- b. display : museum
- c. artist : carpenter
- d. frame : picture

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

12 **EXPLORE** : DISCOVER

- a. read : skim
- b. research : learn
- c. write : print
- d. think : relate

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

13. **COTTON** : BALE

- a. butter : churn
- b. wine : ferment
- c. grain : shock
- d. curd : cheese

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

14. **DIVISION** : SECTION

- a. layer : tier
- b. tether : bundle
- c. chapter : verse
- d. riser : stage

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

15. **PASTORAL** : RURAL

- a. metropolitan : urban
- b. harvest : autumn
- c. agrarian : benevolent
- d. sleepy : nocturnal

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

16. **WAITRESS** : RESTAURANT

- a. doctor : diagnosis
- b. actor : role
- c. driver : truck
- d. teacher : school

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

17. **FINCH** : BIRD

- a. frog : toad
- b. elephant : reptile
- c. Dalmatian : dog
- d. collie : marsupial

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

18. **RAIN** : DRIZZLE

- a. swim : dive
- b. hop : shuffle

c. juggle : bounce

d. run : jog

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

19.SKEIN : YARN

a. squeeze : lemon

b. fire : coal

c. ream : paper

d. tree : lumber

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

20.TAILOR : SUIT

a. scheme : agent

b. edit : manuscript

c. revise : writer

d. mention : opinion

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Easy)

Q21-26 is set of questions that ask you to translate from an Artificial(imaginary) language into English. The best way to approach these questions is to translate each word element.

21. Here are some words translated from an artificial language.

agnoscrenia means poisonous spider.

delanocrenia means poisonous snake.

agnosdeery means brown spider.

Which word could mean “black widow spider”?

a. deerclostagnos

b. agnosdelano

c. agnosvitriblunin

d. trymuttiagnos

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

22. Here are some words translated from an artificial language.

myncabel means saddle horse.

conowir means trail ride.

cabelalma means horse blanket.

Which word could mean “horse ride”?

a. cabelwire

b. conocabel

c. almamyn

d. conoalma

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

23. Here are some words translated from an artificial language.

godabim means kidney stones.

romzbim means kidney beans.

romzbako means wax beans.

Which word could mean “wax statue”?

a. godaromz

b. lazbin

c. wasibako

d. romzpeo

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

24. Here are some words translated from an artificial language.

tamceno means sky blue.

cenorax means blue cheese.

aplmitl means star bright.

Which word could mean “bright sky”?

a. cenotam

b. mitltam

c. raxmitl

d. aplcenlo

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

25. Here are some words translated from an artificial language.

gorblflur means fan belt.

pixngorbl means ceiling fan.

arthtusl means tile roof.

Which word could mean “ceiling tile”?

- a. gorbltusl
- b. flurgorbl
- c. arthflur
- d. pixnarth

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

26. Here are some words translated from an artificial language.. hapllesh means cloudburst. srenchoch means pinball.

resbosrench means ninepin. Which word could mean “cloud nine”?

- a. leshsrench
- b. ochhapl
- c. haploch
- d. haplresbo

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

27. Walk into any supermarket or pharmacy and you will find several shelves of products designed to protect adults and children from the sun. Additionally, a host of public health campaigns have been created, including National Skin Cancer Awareness Month, that warn us about the sun’s damaging UV rays and provide guidelines about protecting ourselves. While warnings about the sun’s dangers are frequent, a recent survey found that fewer than half of all adults adequately protect themselves from the sun. This paragraph best supports the statement that

- a. children are better protected from the sun’s dangerous rays than adults.
- b. sales of sun protection products are at an all-time high.
- c. adults are not heeding the warnings about the dangers of sun exposure seriously enough.
- d. more adults have skin cancer now than ever before.

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

28. Yoga has become a very popular type of exercise, but it may not be for everyone. Before you sign yourself up for a yoga class, you need to examine what it is you want from your fitness routine. If you’re looking for a high-energy, fast-paced aerobic workout, a yoga class might not be your best choice. This paragraph best supports the statement that

- a. yoga is more popular than high-impact aerobics.
- b. before embarking on a new exercise regimen, you should think about your needs and desires.
- c. yoga is changing the world of fitness in major ways.
- d. yoga benefits your body and mind.

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

29. For too long, school cafeterias, in an effort to provide food they thought would be appetizing to young people, mimicked fast-food restaurants, serving items such as burgers and fries, pizza, hot dogs, and fried chicken. School districts nationwide are now addressing this trend by incorporating some simple and inexpensive options that will make cafeteria lunches healthier while still appealing to students. This paragraph best supports the statement that

- a. school cafeterias have always emphasized nutritional guidelines over any other considerations.
- b. young people would rather eat in a school cafeteria than a local fast-food restaurant.
- c. school lunch menus are becoming healthier due to major new initiatives on the part of school districts.
- d. it is possible to make school lunches both healthier and appealing without spending a great deal of money and undertaking a radical transformation.

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

30. During the last six years, the number of practicing physicians has increased by about 20%. During the same time period, the number of healthcare managers has increased by more than 600%. These percentages mean that many doctors have lost the authority to make their own schedules, determine the fees that they charge, and decide on prescribed treatments. This paragraph best supports the statement that doctors

- a. resent the interference of healthcare managers.
- b. no longer have adequate training.
- c. care a great deal about their patients.
- d. are less independent than they used to be.

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Verbal Analytical Part B

Directions Q1-7 :Read the Passage below and select the answers from the options.

Although European decisions during the 16th and 17th centuries to explore, trade with, and colonize large portions of the world brought tremendous economic wealth and vast geographic influence, the enormous success of European maritime ventures during the age of exploration also engendered a litany of unintended consequences for most of the nations with which Europe interacted. Due to their incredible military force, religious zeal, and uncompromising goal of profit, Europeans often imposed their traditions, values, and customs on the people with whom they traded. They frequently acted without regard to the long-term welfare of others as their principal concern was short-term economic gain. Since many nations that traded with Europe placed high value on their historical customs, some natives became deeply disconcerted by the changes that occurred as a result of European power. These factors, coupled with perennial domestic political instability, caused numerous countries to grow increasingly resistant to European influence.

One potent example of this ideological shift can be seen in the actions of the Tokugawa government of Japan. In its Seclusion Edict of 1636, the government attempted to extricate cultural interactions with Europe from the intimate fabric of Japanese society. The Edict attempted to accomplish this by focusing on three areas. First, it sought to curb cultural exchange by eliminating people bringing European ideas into Japan. The Edict stated, "Japanese ships shall by no means be sent abroad....All Japanese residing abroad shall be put to death when they return home." Second, the Edict focused on limiting trade. Articles 11 through 17 of the Edict imposed stringent regulations on trade and commerce. Third, the government banned Christianity, which it saw as an import from Europe that challenged the long-established and well-enshrined religious traditions of Japan. The government went to considerable lengths to protect its culture. Article eight of the Edict stated, "Even ships shall not be left untouched in the matter of exterminating Christians."

With the example of Japan and the examples of other countries that chose a different response to European influence, it is perhaps not too far of a stretch to conclude that Japan made the right decision in pursuing a path of relative isolationism. As history unfolded during the next 400 years, in general, countries that embraced European hegemony, whether by choice or by force, tended to suffer from pernicious wealth inequality, perennial political instability, and protracted underdevelopment.

1. It can best be inferred from the passage that in 1636, the Japanese government:

- A.Saw its citizens living abroad as potential threats
- B.Considered all foreign religions a danger
- C.Disagreed with the European philosophy that trade brought wealth
- D.Foresaw the economic dangers of European trade and imperialism

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

2.Which of the following best characterizes the most significant motivation for Europe's behaviour with Japan during the 17th century?

- A.Religious zeal
- B.Long-term political concerns
- C.Short-term economic self-interest
- D.Cultural imperialism

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

3.The author most likely included the quotation from Article Eight of the Edict at the end of the second paragraph to:

- A.Highlight the venomous anger many Japanese leaders felt toward the importation of foreign religions
- B.Emphasize the determination of the Japanese government to protect itself from foreign influences it saw as damaging
- C.Illustrate how pervasive foreign religious influence had become in Japanese society
- D.Emphasize that European economic influence offered no justification for the Edict and the government relied instead on foreign religious influence to justify the Edict

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

4.Based upon the passage, the author would likely agree most strongly with which of the following statements:

- A.European decisions made during the 16th and 17th centuries in dealing with Japan represent an aberration from the typical pattern of European decisions
- B.Japanese rulers who responded with ferocity to European influence bear part of the responsibility for the caustic European-Japanese relationship that ensued
- C.With the hindsight of history, Japan likely made the appropriate decision in extricating itself from European influence
- D.European religious and cultural values conflicted with European economic behaviour toward Japan

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

5.According to the passage, which of the following constituted the biggest reason for the Seclusion Edict of 1636?

- A.Japanese economic potential would be hampered in the long-term
- B.European trade amounted to a disproportionate transfer of wealth
- C.With growing European influence, the potential for European military action against the Japanese government became too large
- D.Traditional Japanese culture and way of life were threatened by European influence

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

6.According to the passage, the Japanese government took all of the following actions in an attempt to protect Japanese culture and way of life EXCEPT:

- A.Prohibit Japanese from visiting other countries, even to see family
- B.Execute Japanese citizens who settled in other countries but later decided to return to Japan
- C.Heavily regulate foreign economic trade
- D.Prohibit criticism of the feudal shogun system of government

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

7.The primary purpose of the above given passage is to:

- A.Explain the actions of the Tokugawa government of Japan
- B.Compare the results of countries that pursued protectionism with those that pursued globalization
- C.Explore the consequences of some European trade and exploration along with analysing a country's response to it
- D.Argue for the success of European trade as a means to create wealth and exert influence

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Directions Q8-12 Fill in the Blanks

8 Rajeev failed in the examination because none of her answers were _____ to the questions asked.
A. allusive B. revealing C. pertinent D. referential

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

9. There are _____ views on the issue of giving bonus to the employees.
A. independent B. divergent C. modest D. adverse

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

10. Man who has committed such an _____ crime must get the most severe punishment.
A. injurious B. uncharitable C. unworthy D. admoniable
(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

11. He has _____ people visiting him at his house because he fears it will cause discomfort to neighbours
A. curtailed B. requested C. stopped D. warned
(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

12. Although he never learnt to read, his exceptional memory and enquiring mind eventually made him a very man.
A. dedicated B. erudite C. pragmatic D. Benevolent
(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Directions Q13-14: Choose the most logical order of sentences from among the given choices to construct a coherent paragraph

- 13 A. Electronic transactions are happening in closed group networks and Internet. Electronic commerce is one of the most important aspects of Internet to emerge.
B. Cash transactions offer both privacy and anonymity as it does not contain information that can be used to identify the parties nor the transaction history.
C. To support e-commerce, we need effective payment systems and secure communication channels and data integrity.
D. The whole structure of traditional money is built on faith and so will electronic money have to be.
E. Moreover, money is worth what it is because we have come to accept it.

1. BEDAC
2. ABCDE
3. DCEAB
4. DCEBA

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

14. A. Food manufacturers spend more on advertising than any other manufacturing group and the nation's grocery stores rank first among all retailers.
B. Food products lead in expenditures for network and spot television advertisements, discount coupons, trading stamps, contests, and other forms of premium advertising.
C. Foods are overwhelming the most advertised group of all consumer products in the U.S.
D. In other media- newspapers, magazines, newspaper supplements, billboard and radio, food advertising expenditures rank near the top.

- A.ABCD
B. CBDA
C.CBAD
D.CADB

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

Directions Q15-22 Answer the questions based on information provided in the passage

- 15.Mr. Janeck: I don't believe Stevenson will win the election for governor. Few voters are willing to elect a businessman with no political experience to such a responsible public office.
Ms. Siuzdak: You're wrong. The experience of running a major corporation is a valuable preparation for the task of running a state government.
M. Siuzdak's response shows that she has interpreted Mr. Janeck's remark to imply which of the following?
(A) Mr. Janeck considers Stevenson unqualified for the office of governor.
(B) No candidate without political experience has ever been elected governor of a state.
(C) Mr. Janeck believes that political leadership and business leadership are closely analogous.
(D) A career spent in the pursuit of profit can be an impediment to one's ability to run a state government fairly.

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

- 16.Which of the following best completes the passage below?
One tax-reform proposal that has gained increasing support in recent years is the flat tax, which would impose a uniform tax rate on incomes at every level. Opponents of the flat tax say that a progressive tax system, which levies a higher rate of taxes on higher-income taxpayers, is fairer, placing the greater burden on those better able to bear it. However, the present crazy quilt of tax deductions, exemptions, credits, and loopholes benefits primarily the high-income taxpayer, who is consequently able to reduce his or her effective tax rate, often to a level below that paid by the lower-income taxpayer. Therefore, _____
(A) higher-income taxpayers are likely to lend their support to the flat-tax proposal now being considered by Congress
(B) a flat-tax system that allowed no deductions or exemptions would substantially increase actual government revenues

- (C) the lower-income taxpayer might well be penalized by the institution of a flat-tax system in this country
(D) the progressive nature of our present tax system is more illusory than real

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

17. At one time, European and Japanese companies tried to imitate their American rivals. Today, American appliance manufacturers import European scientists to lead their research staffs; American automakers design cars that mimic the styling of German, Italian, and French imports; and American electronics firms boast in their advertising of "Japanese-style" devotion to quality and reliability. In the world of high technology, America has lost the battle for international prestige. Each of the following statements, if true, would help to support the claim above EXCEPT:

- (A) An American camera company claims in its promotional literature to produce cameras "as fine as the best Swiss imports."
(B) An American maker of stereo components designs its products to resemble those of a popular Japanese firm.
(C) An American manufacturer of video games uses a brand name chosen because it sounds like a Japanese word.
(D) An American maker of frozen foods advertises its dinners as "Real European-style entrees prepared by fine French and Italian chefs."

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

18. Johnson is on firm ground when he asserts that the early editors of Dickinson's poetry often distorted her intentions. Yet Johnson's own, more faithful, text is still guilty of its own forms of distortion. To standardize Dickinson's often indecipherable handwritten punctuation by the use of the dash is to render permanent a casual mode of poetic phrasing that Dickinson surely never expected to see in print. It implies that Dickinson chose the dash as her typical mark of punctuation when, in fact, she apparently never made any definitive choice at all.

Which of the following best summarizes the author's main point?

- (A) Although Johnson is right in criticizing Dickinson's early editors for their distortion of her work, his own text is guilty of equally serious distortions.
(B) Johnson's use of the dash in his text of Dickinson's poetry misleads readers about the poet's intentions.
(C) Because Dickinson never expected her poetry to be published, virtually any attempt at editing it must run counter to her intentions.
(D) Although Johnson's attempt to produce a more faithful text of Dickinson's poetry is well-meaning, his study of the material lacks sufficient thoroughness.
(E) Dickinson's editors, including Johnson, have failed to deal adequately with the problem of deciphering Dickinson's handwritten manuscripts.

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

19. A law requiring companies to offer employees unpaid time off to care for their children will harm the economic competitiveness of our nation's businesses. Companies must be free to set their own employment policies without mandated parental-leave regulations.

Which of the following, if true, would most seriously weaken the conclusion of the argument above?

- (A) A parental-leave law will serve to strengthen the family as a social institution in this country.
(B) Many businesses in this country already offer employees some form of parental leave.
(C) Some of the countries with the most economically competitive businesses have strong parental-leave regulations.
(D) Only companies with one hundred or more employees would be subject to the proposed parental-leave law.

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

Ans C

20. If A, then B.

If B, then C.

If C, then D.

If all of the statements above are true, which of the following must also be true?

- (A) If D, then A.
(B) If not B, then not C.
(C) If not D, then not A.
(D) If D, then E.

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

21. Dear Applicant:

Thank you for your application. Unfortunately, we are unable to offer you a position in our local government office for the summer. As you know, funding for summer jobs is limited, and it is impossible for us to offer jobs to all those who want them. Consequently, we are forced to reject many highly qualified applicants.

Which of the following can be inferred from the letter?

- (A) The number of applicants for summer jobs in the government office exceeded the number of summer jobs available.
(B) The applicant who received the letter was considered highly qualified.
(C) Very little funding was available for summer jobs in the government office.
(D) The application of the person who received the letter was considered carefully before being rejected.

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

22. Studies of fatal automobile accidents reveal that, in the majority of cases in which one occupant of an automobile is killed while another survives, it is the passenger, not the driver, who is killed. It is ironic that the innocent passenger should suffer for the driver's carelessness, while the driver often suffers only minor injuries or none at all. Which of the following is an assumption underlying the reasoning in the passage above?

- (A) In most fatal automobile accidents, the driver of a car in which an occupant is killed is at fault.
 - (B) Drivers of automobiles are rarely killed in auto accidents.
 - (C) Most deaths in fatal automobile accidents are suffered by occupants of cars rather than by pedestrians.
 - (D) Auto safety experts should increase their efforts to provide protection for those in the passenger seats of automobiles.
- (Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

23. With his sub-four minute mile Bannister broke a psychological barrier, **inspiring thousands of others to attempt overcoming** seemingly insurmountable hurdles.

- A.inspiring thousands of others to attempt overcoming
- B.inspiring thousands of others to attempt to overcome
- C.inspiring thousands of others to overcome
- D.and inspired thousands of others to attempt to overcome
- E.and inspired thousands of others to attempt overcoming

Answer – (D)diff

24.By the year 2000, A Tale of Two Cities, Charles Dickens' gripping **book portraying the suffering of the proletariat under the brutal subjugation of the French aristocracy had around 200 million copies in print, making it more than** that of almost any other English book ever written.

- A.book portraying the suffering of the proletariat under the brutal subjugation of the French aristocracy had around 200 million copies in print, making it more than
- B.book portraying the suffering of the proletariat under the brutal subjugation of the French aristocracy had around 200 million copies in print, which is more than
- C.book portraying the suffering of the proletariat under the brutal subjugation of the French aristocracy, had around 200 million copies in print, more than
- D.book portraying the suffering of the proletariat under the brutal subjugation of the French aristocracy, had around 200 million copies in print, making it more than
- E.book portraying the suffering of the proletariat under the brutal subjugation of the French aristocracy had around 200 million copies in print and is more than

Answer – (C) diff

Directions 25-27 Choose the best option for the highlighted portion

25.An analysis of sixteenth century probate inventories in the major English towns **show that even some artisans and yeomen owned silver spoons, cups or** salt cellars.

- A.show that even some artisans and yeomen owned silver spoons, cups or
 - B.show that some artisans and yeomen even owned silver spoons, cups or
 - C.show that even some artisans and yeomen owned silver spoons, cups and
 - D.shows that even some artisans and yeomen owned silver spoons, cups or
- (Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

26.The recent photographs of the giant squid are remarkable **because they show these enormous living creatures as moving around in their** natural environment, whereas previous pictures have been of only dead animals.

- A.because they show these living creatures as moving around in their
- B.in that they show this most enormous of living creatures moving around in its
- C.in that they show this most enormous of living creatures moving around in its
- D.because these enormous living creatures are shown to be moving around in their

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

27. The psychologist reported that **the most common problems undergraduates experience stem from a lack of self-esteem, difficulty in adjusting to university life and loneliness.**

- A. the most common problems undergraduates experience stem from a lack of self-esteem, difficulty in adjusting to university life and loneliness
- B. the most common problems undergraduates experienced stemmed from a lack of self-esteem, difficulty in adjusting to university life and loneliness
- C. the most common problems undergraduates experience stem from loneliness, a lack of self-esteem, and difficulty in adjusting to university life
- D. the most common problem undergraduates have experienced stems from a lack of self-esteem, loneliness, and difficulty in adjusting to university life

(Answer: D; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Difficult)

28. Antonym of Luminous is

- A.clear B.dim C.brittle D.low

(Answer: B; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

29. Antonym of Malodorous

- A.pungent B.delicious C.fragrant D.acrid

(Answer: C; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

30. Antonym of Abate

- A.augment B.free C.provoke D.wane

(Answer: A; Experience: None; Taxonomy: None; Score: 1; Wscore: -0.25; Shuffle: Yes; Level: Moderate)

TCS NQT Questions and Answers for Programming Logic

C Programming

1. What will be the data type returned for the following C function?

```
1. #include <stdio.h>
2. int func()
3. {
4.     return (double)(char)5.0;
5. }
```

- a) char
- b) int
- c) double
- d) multiple type-casting in return is illegal

Answer: b

2. What will be the output of the following C code?

```
const char pla[] = "string1";
const char src[] = "string2";
printf("Before memmove place= %s, src = %s\n", pla, src);
memmove(pla, src, 7);
printf("After memmove place = %s, src = %s\n", pla, src);
```

- a) Before memmove place= string1, src = string2 After memmove place = string2, src = string2
- b) Before memmove place = string2, src = string2 After memmove place= string1, src = string2
- c) Before memmove place = string2, src = string1 After memmove place= string2, src =string2
- d) Before memmove place= string1, src = string2 After memmove place=string1, src = string1

Answer: a

Explanation: In the C library function void *memmove(void *str1, const void *str2, size_t n) copies n characters from str2 to str1.

CPP

3. Which of the header file is used to implement algorithms provided by C++ STL?
- a) <algorithm>
 - b) <header>
 - c) <algos>
 - d) <Algorithm>

Answer: a

Explanation: <algorithm> header is provided by the C++ to use STL algorithms.

4. Pick out the compound assignment statement.

- a) $a = a - 5$
- b) $a = a / b$
- c) $a -= 5$
- d) $a = a + 5$

Answer: c

Explanation: When we want to modify the value of a variable by performing an operation on the value currently stored, We will use compound assignment statement. In this option, $a -= 5$ is equal to $a = a - 5$.

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5. Which method do we use to append more than one character at a time?

- a) append
- b) operator+=
- c) data
- d) both append & operator+=

Answer: d

Explanation: C++ allows to append more characters to string using both inbuilt append() function and using operator overloaded += operator.

Java

6. Which of these is an incorrect array declaration?
- a) int arr[] = new int[5]
 - b) int [] arr = new int[5]
 - c) int arr[] = new int[5]
 - d) int arr[] = int [5] new

Answer: d

Explanation: Operator new must be succeeded by array type and array size.

7. In the following Java code, which code fragment should be inserted at line 3 so that the output will be: “123abc 123abc”?

```
1. StringBuilder sb1 = new StringBuilder("123");
2. String s1 = "123";
3. // insert code here
4. System.out.println(sb1 + " " + s1);
```

- a) sb1.append("abc"); s1.append("abc");
- b) sb1.append("abc"); s1.concat("abc");
- c) sb1.concat("abc"); s1.append("abc");
- d) sb1.append("abc"); s1 = s1.concat("abc");

Answer: d

Explanation: append() is StringBuffer method and concat is String class method. append() is StringBuffer method and concat is String class method.

Data Structures

8. What are the dimensions of an incidence matrix?

- a) Number of edges*number of edges
- b) Number of edges*number of vertices
- c) Number of vertices*number of vertices
- d) Number of edges * ($\frac{1}{2} * \text{number of vertices}$)

Answer: b

Explanation: Columns may represent edges and vertices may be represented by the rows. <https://www.freshersnow.com/placement-papers-download/>

9. The essential condition which is checked before deletion in a linked queue is?

- a) Underflow
- b) Overflow
- c) Front value
- d) Rear value

Answer: a

Explanation: To check whether there is element in the list or not.

10. Which one of the following data structures are preferred in database-system implementation?

- a) AVL tree

- b) B-tree
- c) B+ -tree
- d) Splay tree

Answer: c

Explanation: The database-system implementations use B+ -tree data structure because they can be used for multilevel indexing.

TCS NQT

Verbal ability

Reading comprehension

(1-6) Directions: Read the following passage carefully and answer the questions.

The English language in education today is all-pervasive. “Hear more English, speak more English and become more successful” has become a self-fulfilling prophecy. Some say it’s already a universal language, ahead of other mother tongues such as Arabic, Chinese, Russian, Spanish or French. In reality, of course, this has been centuries in the making. Colonial conquest and global trade routes won the hearts and minds of foreign education systems. These days, the power of English has become accepted wisdom, used to justify the globalisation of education at the cost of existing systems in non-English-speaking countries. The British Council exemplifies this, with its global presence and approving references to the “English effect” on educational and employment prospects.

In non-English countries the packaging of English and its promise of success takes many forms. Instead of being integrated into (or added to) national teaching curricula, English language learning institutes, language courses and international education standards can dominate whole systems. Schools in non-English-speaking countries attract globally ambitious parents and their children with a mix of national and international curricula. The love of all things English begins at a young age in non-English-speaking countries, promoted by pop culture, Hollywood movies, fast-food brands, sports events and TV shows. Later, with English skills and international education qualifications from high school, the path is laid to prestigious international universities in the English-speaking world and employment opportunities at home and abroad. But those opportunities aren’t distributed equally across socioeconomic groups. Global education in English is largely reserved for middle-class students. This is creating a divide between those inside the global English proficiency ecosystem and those relegated to parts of the education system where such opportunities don’t exist. For the latter there is only the national education curriculum and the lesson that social mobility is a largely unattainable goal.

Indonesia presents a good case study. With a population of 268 million, access to English language curricula has mostly been limited to urban areas and middle-class parents who can afford to pay for private schools. At the turn of

this century, all Indonesian districts were mandated to have at least one public school offering a globally recognised curriculum in English to an international standard. But in 2013 this was deemed unconstitutional because equal educational opportunity should exist across all public schools. Nevertheless, today there are 219 private schools offering at least some part of the curriculum through Cambridge International, and 38 that identify as Muslim private schools. Western international curricula remain influential in setting the standard for what constitutes quality education.

Academic performance measured by knowledge and skill is, of course, still important and a source of personal fulfilment. But without that cultural balance and the nurturing of positive character traits, it lacks deeper meaning. A regulation issued by the Indonesian minister of education in 2018 underlined this. It listed a set of values and virtues that school education should foster: faith, honesty, tolerance, discipline, hard work, creativity, independence, democracy, curiosity, nationalism, patriotism, appreciation, communication, peace, a love of reading, environmental awareness, social awareness and responsibility. These have been simplified to five basic elements of character education: religion, nationalism, Gotong Royong (collective voluntary work), independence and integrity. These are not necessarily measurable by conventional, Western, English-speaking and empirical means.

1. Refer to the sentence: *These days, the power of English has become accepted wisdom, used to justify the globalisation of education at the cost of existing systems in non-English-speaking countries.* What does the author seek to convey through the sentence?

A –

Although diversity is a major goal of global education, the prevalence of English has led to the degradation of education systems in non-English-speaking countries.

B –

The English language has become a unifying force for various countries.

C –

The significance of English is widely accepted and it has undermined existing education systems in non-English-speaking countries.

D –

The dominance of English in global education has led to deterioration of quality.

Solution

(c) is the right answer. The author has talked about the “power of English”. By this phrase he aims to highlight that English holds a lot of significance in today’s day and age. He has explained it by highlighting its prevalence in global education and the opportunities that it brings. He has also pointed out that in many countries, English has been able to expand its footprint at the expense of non-English education systems. Thus, C is the right answer as it captures the central idea.

A is incorrect as the statement does not talk about diversity in academics.

B is incorrect as the statement does not seek to highlight the role of English in bringing countries together.

D is incorrect because the statement is not concerned with the quality of global education

2. What is the primary purpose of the author in the second paragraph of the passage?

A –

to highlight how unequal access to English may be associated with the class divide

B –

to highlight the difference in quality of private and government schools

C –

to highlight the need to provide access to English language to every socio-economic class

D –

to highlight the overwhelming focus on English instead of local languages

Solution

(a) is the right answer. In the second paragraph the author has highlighted that the global education in English and the opportunities it brings is limited to the middle class. Those students who are not proficient in English do not get

enough opportunities to move ahead as they are part of the non-English education systems. Refer to the lines: *Global education in English is largely reserved for middle-class students. This is creating a divide between those inside the global English proficiency ecosystem and those relegated to parts of the education system where such opportunities don't exist. For the latter there is only the national education curriculum and the lesson that social mobility is a largely unattainable goal.* Thus, the unequal access to English is associated with the class divide.

B is incorrect as the second paragraph does not talk about private and government schools.

C is incorrect because the author does not advocate that every socio-economic group should be provided access

D is incorrect because it is not the central idea of the second paragraph.

E is incorrect because the paragraph does not talk about the Western curricula.

3. Based on the information given in the passage, it is clear that _____.

A -

English language should be accepted as the global medium of education as European countries have fared better in terms of education.

B -

If English becomes the global language, we may end up losing better ways of learning.

C -

English is often seen as a passport to success in many non-English-speaking countries.

D -

There is a need to focus on other education systems that only use English in a limited way.

Solution

(c) is the right answer. The author has highlighted the significance of English language and its dominance in global education. He has also highlighted that it brings in greater opportunities in academics as well as in terms of jobs.

A is incorrect as the passage does not state that European countries have fared better in terms of education.

B is incorrect because the passage does not state that other ways of learning are under threat because of the English language.

D is incorrect as the passage does not talk about the degree to which English should be used in other education systems.

4. As per the passage, which of the following statements is TRUE?

A -

The inability to communicate coherently in the mother tongue limits the chances of success.

B -

The English language may dominate the education system but pop culture is still dominated by regional languages.

C -

Education systems of different countries are based on different values and they understand success in different ways.

D -

Access to English language may be uniform but the access to global education is not.

Solution

(c) is the right answer. Refer to the lines: *A regulation issued by the Indonesian minister of education in 2018 underlined this. It listed a set of values and virtues that school education should foster:..... These are not necessarily measurable by conventional, Western, English-speaking and empirical means.* The author seeks to highlight that not all education systems measure success in the same way as the Western, English-speaking education system does. Thus, C is true.

A is incorrect as the passage is not concerned with any language other than English.

B is incorrect. Refer to the lines: *The love of all things English begins at a young age in non-English-speaking countries, promoted by pop culture, Hollywood movies, fast-food brands, sports events and TV shows.*

D is incorrect. Refer to the lines: *But those opportunities aren't distributed equally across socioeconomic groups. Global education in English is largely reserved for middle-class students.*

5. Which of the following factors have contributed to the rise of English as a global language?

1. Colonialism and dominance of trade routes by English-speaking countries
2. Dominance of the English language in the pop culture
3. Better academic and employment opportunities are available to those proficient in English

A -

Only 1

B -

Only 2 and 3

C -

Only 1 and 3

D -

All 1, 2 and 3

Solution

(d) is the right answer. Refer to the lines: *Colonial conquest and global trade routes won the hearts and minds of foreign education systems.....The love of all things English begins at a young age in non-English-speaking countries, promoted by pop culture, Hollywood movies, fast-food brands, sports events and TV shows. Later, with English skills and international education qualifications from high school, the path is laid to prestigious international universities in the English-speaking world and employment opportunities at home and abroad.* All the three factors have been explicitly mentioned in the passage.

6. Which of the following is the opposite in meaning to the word '*unattainable*' as used in the passage?

A -

convivial

B -

exuberant

C -

esoteric

D -

feasible

Solution

(d) is the right answer. If you say that something is unattainable, you mean that it cannot be achieved or is not available. FEASIBLE is the antonym.

Convivial (adj.)- pleasant, friendly, and relaxed.

Exuberant (adj.)- full of energy, excitement, and cheerfulness.

Esoteric (adj.)- intended for or likely to be understood by only a small number of people with a specialized knowledge or interest.

Diligent (adj.)- having or showing care and conscientiousness in one's work or duties.

Error location

7. In the following question, one part of the sentence may have an error. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'.

A -

The successful conservation of

B -

the earth's species in a way that keeps

C -

biodiversity functional and healthy

D -

will likely depend at collaboration.

Solution

In D, replace the preposition AT with ON, as the verb DEPEND will take the preposition ON after it. Thus, (d) is the right answer.

Error location

8. In the following question, one part of the sentence may have an error. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'.

A -

While sport fishermen are excited about red snapper fish

B -

moving down the East Coast of Australia,

C -

if they eat juvenile lobsters in Tasmania they could harmed

D -

this environmentally and economically important crustacean.

Solution

In C, replace the second form verb HARMED with HARM as the modal verb COULD will take the base form of the main verb that follows it. Thus, (c) is the right answer.

Error location

9. In the following question, one part of the sentence may have an error. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'.

A -

Large birds of prey are more acutely

B -

affected by dramatic climate changes

C -

because they have fewer offspring and

D -

No error

Solution

The sentence is grammatically correct and free of error. Thus, (d) is the right answer.

Phrase replacement

10. Which of the following phrases (1), (2), and (3) given below each sentence should replace the phrase printed in bold letters to make the sentence grammatically correct? Choose the best option among the five given alternatives that reflect the correct use of the phrase in the context of the grammatically correct sentence. If the sentence is correct as it is, mark 'No Improvement' as the answer.

To minimise the impacted on the endangered turtles, authorities supervise and limit the number of visitors each night.

1. For minimum impact on
2. For the purpose of minimally impactful
3. So that there is minimal impact on

A -

No Improvement

B -

Only 1 and 2

C -

Only 1 and 3

D -

Only 2 and 3

Solution

The sentence tells us how the authorities have limited the number of tourists each night so that there is minimum impact on the endangered turtles. Both 1 and 3 can replace the highlighted phrase to convey the requisite meaning. Thus, (c) is the right answer.

2 is incorrect as it ends with the adjective IMPACTFUL, which does not link with the remaining sentence grammatically. The highlighted phrase is incorrect as the noun IMPACT should have been used in place of the verb IMPACTED as it is being modified by the definite article THE.

Phrase replacement

11. Which of the following phrases (1), (2), and (3) given below each sentence should replace the phrase printed in bold letters to make the sentence grammatically correct? Choose the best option among the five given alternatives that reflect the correct use of the phrase in the context of the grammatically correct sentence. If the sentence is correct as it is, mark 'No Improvement' as the answer.

New evidence has also failed **to brought a support for** his ideas, but this is not to say that we should ignore what he wrote.

1. To throw support to

2. To support

3. To have supported

A -

No Improvement

B -

Only 1 and 2

C -

Only 1 and 3

D -

Only 2 and 3

Solution

The sentence tells us how new evidence does not support his ideas, but one must not ignore his writings. Both 1 and 2 can replace the highlighted phrase to convey the requisite meaning. Thus, (b) is the right answer.

3 is incorrect as it introduces the helping verb HAVE which will be redundant since the helping verb HAS has already been used in the sentence. The

highlighted phrase is incorrect as the infinitive construction TO + VERB will take the base form of the verb BRING instead of the second form verb BROUGHT.

Phrase replacement

12. Which of the following phrases (1), (2), and (3) given below each sentence should replace the phrase printed in bold letters to make the sentence grammatically correct? Choose the best option among the five given alternatives that reflect the correct use of the phrase in the context of the grammatically correct sentence. If the sentence is correct as it is, mark 'No Improvement' as the answer.

In compare with Norway, Sweden had substantially higher actual and projected unemployment numbers as a result of the recession.

1. Compared to

2. As opposed to

3. In contrast to

A -

No Improvement

B -

Only 1 and 2

C -

Only 1 and 3

D -

All 1, 2 and 3

Solution

The sentence tells us how Sweden had higher unemployment when compared to Norway. All 1, 2 and 3 can replace the highlighted phrase to convey the requisite meaning. Thus, (D) is the right answer.

The highlighted phrase is incorrect as the noun COMPARISON should have been used in place of the verb COMPARE.

Jumbled sentences

13. In the question given below, rearrange the parts of the sentence in the correct order, and choose the correct option.

attempts to cut spending (A)/ during her first months in office (B)/ as a result of the administration's (C)/ she attracted public attention (D)

A -

ADCB

B -

ABDC

C -

DBAC

D -

DBCA

Solution

DBCA is the final order. D begins the sentence by establishing the subject - SHE, and tells us that she attracted attention from the public. B follows by telling us when - during the first few months when she was in office. CA follows as a pair, telling us the reason behind this - the administration tried to cut spending. Thus, (d) is the right answer.

Jumbled sentences

14. In the question given below, rearrange the parts of the sentence in the correct order, and choose the correct option.

large sections of the fans began to (A)/ question the coach's ability and (B)/ as a result, crowds began to dwindle (C)/ and morale was beginning to suffer (D)

A -

ACBD

B -

BCDA

C -

BADC

D -

No rearrangement required

Solution

ABCD is the final order. A begins the sentence by establishing the subject - large sections of the fans. B follows by telling us that they began to question the ability of the coach. CD follow as a pair, giving the effects of this - crowds began to reduce in number, and morale of the team was suffering. Thus, (d) is the right answer.

Jumbled sentences

15. In the question given below, rearrange the parts of the sentence in the correct order, and choose the correct option.

the Hindu cultural influence found (A)/ many of the surviving examples of (B)/ today throughout Southeast Asia (C)/ are the result of the Chola expeditions (D)

A -

BDAC

B -

BACD

C -

BCAD

D -

ADBC

Solution

BACD is the final order. BA begins the sentence as a pair, by establishing the subject - the surviving examples of Hindu cultural influence. C follows by telling us where these examples have been found - throughout Southeast Asia. D concludes by telling us that they are the result of Chola expeditions. Thus, (b) is the right answer.

Jumbled sentences

16. In the question given below, rearrange the parts of the sentence in the correct order, and choose the correct option.

as a result of famine and forced labour (A)/ people died in Indonesia (B)/ a UN report stated that four million (C)/ during the Japanese occupation (D)

A -

DCAB

B -
DBAC

C -
CABD

D -
CBAD

Solution

CBAD is the final order. C begins the sentence by establishing the subject - a UN report. B follows by telling us the statement made by this report - four million deaths in Indonesia. A gives the causes behind these deaths - famine and forced labour. D concludes by telling us when this took place - during the Japanese occupation. Thus, (d) is the right answer.

Antonyms

17. In the following question, choose the word opposite in meaning to the given word.

Indigent

A -
Wealthy

B -
Suffered

C -
Subject

D -
Opportunity

Solution

(a) is the correct answer. INDIGENT means poor or needy. WEALTHY is its antonym.

Suffered- Undergone, Subject- Issue, Opportunity- Chance.

Synonyms

18. In the following question, out of the four alternatives, choose the one which best expresses the meaning of the given word.

Overjoyed

- A -
Guarantee
- B -
Respectable

- C -
Ecstatic
- D -
Objective

Solution

(c) is the correct answer. OVERJOYED means 'extremely happy'. ECSTATIC is its synonym.

Guarantee- Assurance, Respectable- regarded to be good, Objective- Aim.

Phrasal verbs/idioms

19. In the question below, a sentence is given with an idiom in brackets, followed by four options. Select the option that gives the correct meaning of the idiom.

The scientists (**have blazed the trail**) when it comes to gene therapy.

- A -
have condemned the violence
- B -
have defied the rules
- C -
have done something new
- D -
have surrendered

Solution

(c) is the correct answer. 'To blaze the trail' means 'to do something never done before'. (c) conveys the requisite meaning of the phrase.

Phrasal verbs/idioms

20. In the following question, a sentence is given with a phrase or idiom in brackets. Select the option given below that can replace the bracketed phrase.

The fight between the party members (has break out) due to disagreement over the bill.

A -

has broken out

B -

have broken out

C -

has broke out

D -

No improvement

Solution

(a) is the correct answer. The sentence tells us about why a fight has erupted between the party members. (a) conveys the requisite meaning of the phrase.

The present perfect tense construction HAS + VERB will take the past participle form of the verb BROKEN. This makes C and the highlighted phrase incorrect as they use the second form and the base form of the verb respectively. B is incorrect as it uses the plural verb HAVE in place of the singular HAS while the subject FIGHT is singular.

Phrasal verbs/idioms

21. In the following question, a sentence is given with a phrase or idiom in brackets. Select the option given below that can replace the bracketed phrase.

The prime minister went to the state (to calling on) the victims of the cyclone.

A -

to call out

B -

to call on

C -

to call off

D -

No improvement

Solution

(b) is the correct answer. The sentence tells us how the prime minister went to visit the victims of the cyclone. CALL ON means to visit. (b) conveys the requisite meaning of the phrase.

A is incorrect as CALL OUT means to shout. C is incorrect as CALL OFF means to cancel. The highlighted phrase is incorrect as infinitive construction TO + VERB will take the base form of the verb CALL instead of the continuous form verb CALLING.

Para jumbled sentences

22. In the question given below, rearrange the fragments in the correct order, and choose the correct option.

P. Disability is an 'umbrella term for impairments, activity limitations and participation restrictions.

Q. These limitations are caused by an interaction between the health conditions of an individual and the contextual factors reflected in the social-economic environment of the day.

R. The understanding about disability has moved away from a biological perspective to questions of accessibility, inclusion and empowerment.

S. Civil Society activists and policymakers have started thinking about the issue of disability in terms of a rights-based and inclusive paradigm.

A -

PQRS

B -

PSQR

C -

PRQP

D -

SQRP

Solution

(a) is the correct answer. The correct sequence is PQRS. P begins the sentence by introducing the subject- DISABILITY. Q follows P as it talks about the reasons for these limitations (mentioned in P) related to disability and how they are caused. R follows Q by stating how the understanding of disability has changed over the years. S concludes by further showing the work of social activists and activists to accommodate the change in understanding of disability.

Active voice/passive voice

23. In the following question, a sentence has been given in Active/ Passive Voice. Out of the four alternatives suggested, select the one which best expresses the same sentence in Passive/Active Voice.

The keynote speech was delivered by the head of the alumni committee.

A -

The head of the alumni committee delivered the keynote speech.

B -

The head of the alumni committee had delivered the keynote speech.

C -

The head of the alumni committee has delivered the keynote speech.

D -

The head of the alumni committee will deliver the keynote speech.

Solution

The sentence is in the indicative mood and passive voice. Follow the rules below to convert a sentence in the indicative mood to active voice:

1. The subject clause will become the object clause. Here, the subject THE KEYNOTE SPEECH will change to the object, and the object THE HEAD OF THE ALUMNI COMMITTEE will change into the subject and begin the sentence.

2. Replace WAS DELIVERED with DELIVERED.

3. Remove the conjunction BY before THE HEAD OF THE ALUMNI COMMITTEE.

Option (a) is the right answer.

Direct / indirect speech

24. In the following question, a sentence has been given in Direct/ Indirect speech. Out of the four alternatives suggested, select the one which best expresses the same sentence in Direct/ Indirect speech.

The man said, "The train is late."

A -

The man said that the train was late.

B -

The man said that the train has been late.

C -

The man said that the train will be late.

D -

The man said that the train is late.

Solution

Option (a) is the right answer.

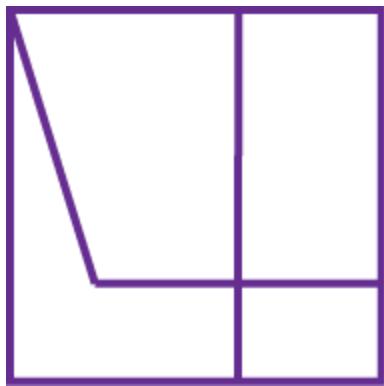
The sentence is in direct speech and in the indicative mood. To convert this sentence to the indirect speech, follow these rules:

1. Remove the comma and the inverted commas.
2. Begin the indirect speech sentence with the reporting speech clause THE MAN SAID.
3. Put THAT between the reporting and reported speeches.
4. Change the simple present tense IS LATE to the past tense WAS LATE.

Reasoning ability

Counting the figures

25. How many polygons are there in the following figure?



- A -
7
- B -
5
- C -
6
- D -
More than 7

Solution

There are more than 7 polygons present in the figure.

Hence, option d.

Missing number series

26. In the given question, select the missing numbers from the given series.

1, 3, 7, 13, 21, 31, 43, 57, ?, ?

- A -
73, 91
- B -
73, 93
- C -
71, 91
- D -
72, 92

Solution

Given series

1, 3, 7, 13, 21, 31, 43, 57

So, $1+2=3$, $3+4=7$, $7+6=13$, $13+8=21$ which means series follows the +2 rule in every step to get the next number.

Similarly, $57+16=73$, $73+18=91$

Hence, option a.

Distance & direction

27. Ramu moves towards the east direction from point P and covers 30m to reach point Q and then takes right and covers 40m to reach point R. Find the direction and the distance from the initial point to the final point.

A -
50m east

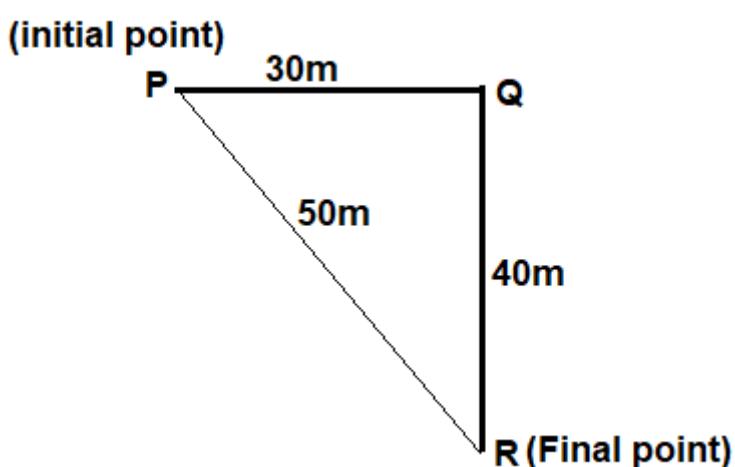
B -
50m south east

C -
40m north east

D -
40m north west

Solution

From figure below, it is clear that Ramu is 50m towards the southeast from the



initial point.

By using Pythagoras Theorem, we get the distance i.e. 50m.

Hence, option b.

Matrix coding

28. A word is represented by only one set of number as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by its column and next by its row, e.g., K can be represented by 00, 13, 23 etc. and L can be represented by 30,14 etc.

Similarly, you have to identify the code of given word “ATRIBUTE”?

Matrix I:

	0	1	2	3	4
0	K	N	T	L	B
1	N	T	A	B	N
2	T	U	N	T	D
3	U	K	K	P	T
4	S	L	O	K	U

Matrix II:

	5	6	7	8	9
5	M	O	L	M	E
6	V	U	Z	D	V
7	Z	A	I	V	A
8	U	D	Q	M	L

9	E	M	R	O	M
---	---	---	---	---	---

A -

21, 44, 78, 67, 13, 43, 60, 95

B -

67, 02, 79, 77, 40, 03, 20, 59

C -

97, 32, 78, 12, 18, 87, 56, 23

D -

97, 32, 78, 12, 12, 19, 45, 11

Solution

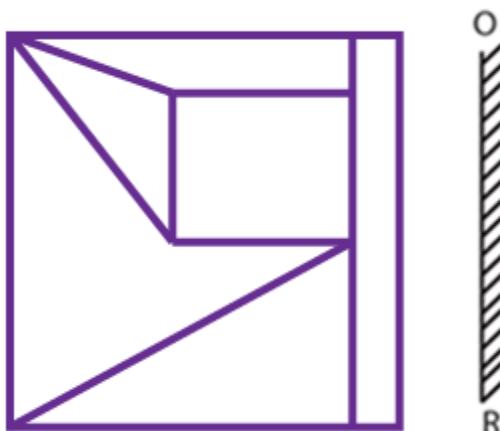
Given word “ATRIBUTE”

A	T	R	I	B	U	T	E
21, 67, 97	11, 20, 32, 43, 02	79	77	31, 40	12, 03, 66, 58	11, 20, 32, 43, 02	95, 59

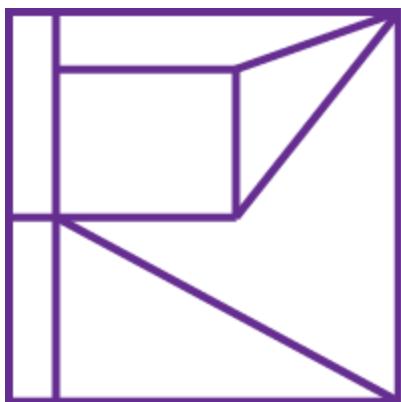
Hence, option b.

Mirror image

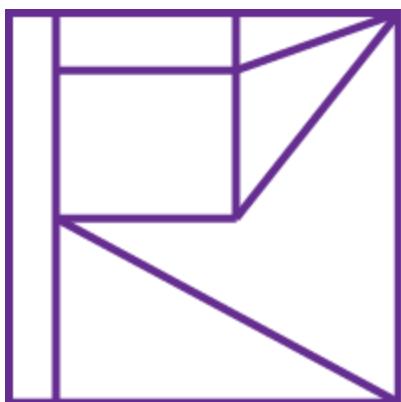
29. If a mirror is placed on the line OR, then which of the answer figures is the right image of the given figure?



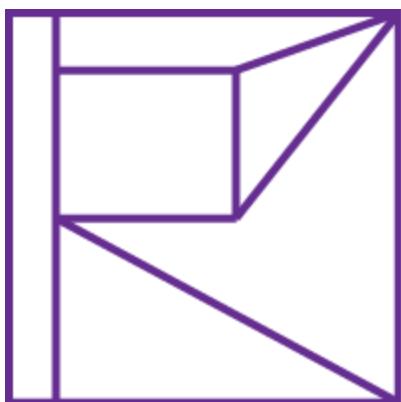
A -



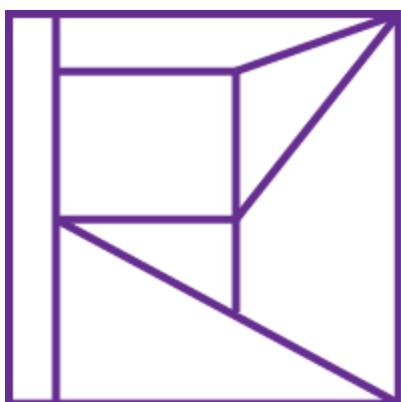
B -



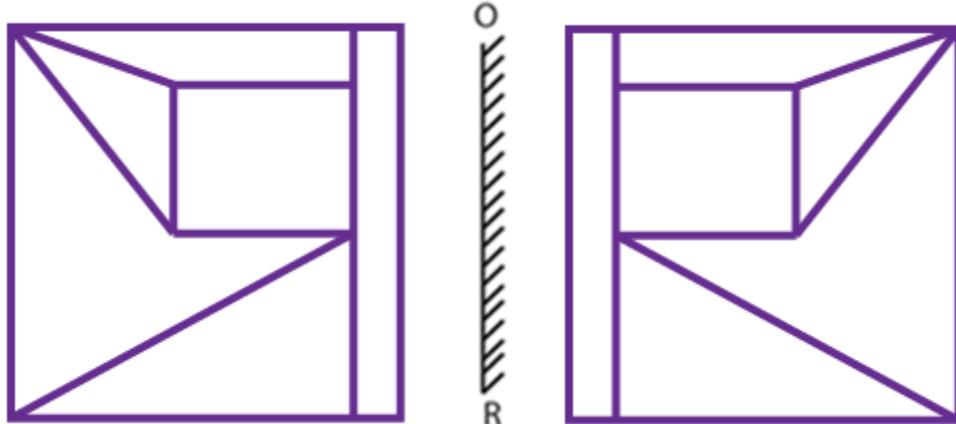
C -



D -



Solution



Hence, option c.

Calendars

30. Mintu's birthday is on Wednesday 8th May. On what day of the week will be Anku's birthday in the same year if Anku was born on 10th August?

- A - Sunday
- B - Thursday
- C - Friday
- D - Saturday

Solution

8th May – Wednesday.

Number of days between 8th May to 10th August

$$= 23 + 30 + 31 + 10 = 94$$

Number of odd days = $94 \div 7 = 3$ (remainder)

Anku's birthday = Wednesday + 3 = Saturday.

Hence, option d.

Mathematical operations (interchange of signs and numbers)

31. In a certain code language, '+' represents 'x', '-' represents '+', 'x' represents '÷' and '÷' represents '-'. What is the answer to the following question?

$$54 \times 9 + 5 - 8 \div 12 = ?$$

A -

26

B -

21

C -

24

D -

23

Solution

So, after changing the signs of the given equation

$$54 \div 9 \times 5 + 8 - 12$$

$$= 6 \times 5 + 8 - 12 = 26$$

Hence, option a.

Syllogisms

32. In the question below are given two statements followed by two conclusions i.e. I and II. Taking the given statements to be true even if they seem to be variance from commonly known facts, read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:

At least some balls are bats

All bats are caps

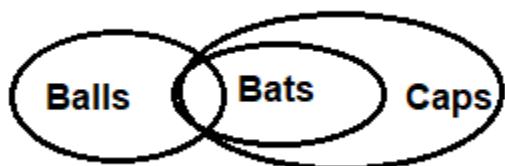
Conclusions:

- I. All caps are balls
 II. Some balls are not bats

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

Solution

Following figure can be formed from the above statements.



From the above figure it is clear that all caps are not balls so conclusion I does not follow.

Similarly, all bats can be balls so conclusion II does not follow.

Hence, option c.

Inserting the missing number

33. Select the missing number from the given responses:

79	?	113
25	56	93
54	33	20

A -

56

B -

89

C -

81

D -

43

Solution

Given that:

79	?	113
25	56	93
54	33	20

So, $79 - 25 = 54$, $113 - 93 = 20$ similarly $89 - 56 = 33$

Hence, option b.

Alphabet series

34. In the given question, which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

pqr_ _pqq_ rssp_ pqq_rrrs_s

A -

pqssqp

B -

sprpq

C -

spprpq

D -

srpqrp

Solution

Given series follows the following pattern

pqrss/pqqqrrss/pqqqrrss

Hence, option b.

Floors based puzzle

(35-39) Directions: Answer the questions based on the information given below.

Eleven persons, A, B, C, D, E, F, G, H, I, J and K live on different floors of a 11 storeyed building, where the bottommost floor is 1 and the floor above it is 2 and so on.

Four persons live above K. Three persons live between K and G, who lives just above D. A lives 3 floors above B, who lives just above H. H lives on a prime numbered floor. J lives on an odd numbered floor below B. One person lives between J and I. Neither F nor E lives adjacent to J. More than three persons live between C and E.

35. _____ lives on 2nd floor.

A -

H

B -

C

C -

I

D -

H

Solution

Starting point: Start with the direct hints, four persons live above K, who lives either above or below G.

Clues: A lives 3 floors above B, who lives just above H. H lives on a prime numbered floor. J lives on an odd numbered floor below B.

Inference: H either lives on 2nd or 5th floor.

Case 1: When G lives below K. One person lives between J and I, so this case is not possible.

Floors	Persons
11	
10	
9	A
8	
7	K
6	B
5	H
4	
3	G
2	D
1	J

Case 2: When G lives above K. One person lives between J and I, so case 2(a) is not possible.

Floors	Case 2(a)	Case 2(b)
11	G	G
10	D	D
9		A
8		

7	K	K
6	A	B
5		H
4		
3	B	I/J
2	H	
1	J	J/I

Clues: Neither F nor E lives adjacent to J. More than three persons live between C and E.

Inference: So, J lives on the bottommost floor. E lives on 8th floor.

The final arrangement is as follows:

Floors	Persons
11	G
10	D
9	A
8	E
7	K
6	B
5	H

4	F
3	I
2	C
1	J

C lives on 2nd floor.

Hence, option b.

36. How many persons live above G?

A -

2

B -

3

C -

None

D -

5

Solution

Starting point: Start with the direct hints, four persons live above K, who lives either above or below G.

Clues: A lives 3 floors above B, who lives just above H. H lives on a prime numbered floor. J lives on an odd numbered floor below B.

Inference: H either lives on 2nd or 5th floor.

Case 1: When G lives below K. One person lives between J and I, so this case is not possible.

Floors	Persons

11	
10	
9	A
8	
7	K
6	B
5	H
4	
3	G
2	D
1	J

Case 2: When G lives above K. One person lives between J and I, so case 2(a) is not possible.

Floors	Case 2(a)	Case 2(b)
11	G	G
10	D	D
9		A
8		
7	K	K

6	A	B
5		H
4		
3	B	I/J
2	H	
1	J	J/I

Clues: Neither F nor E lives adjacent to J. More than three persons live between C and E.

Inference: So, J lives on the bottommost floor. E lives on 8th floor.

The final arrangement is as follows:

Floors	Persons
11	G
10	D
9	A
8	E
7	K
6	B
5	H
4	F

3	I
2	C
1	J

No one lives above G.

Hence, option c.

37. How many persons live between I and A?

A -

4

B -

2

C -

1

D -

5

Solution

Starting point: Start with the direct hints, four persons live above K, who lives either above or below G.

Clues: A lives 3 floors above B, who lives just above H. H lives on a prime numbered floor. J lives on an odd numbered floor below B.

Inference: H either lives on 2nd or 5th floor.

Case 1: When G lives below K. One person lives between J and I, so this case is not possible.

Floors	Persons
11	

10	
9	A
8	
7	K
6	B
5	H
4	
3	G
2	D
1	J

Case 2: When G lives above K. One person lives between J and I, so case 2(a) is not possible.

Floors	Case 2(a)	Case 2(b)
11	G	G
10	D	D
9		A
8		
7	K	K
6	A	B

5		H
4		
3	B	I/J
2	H	
1	J	J/I

Clues: Neither F nor E lives adjacent to J. More than three persons live between C and E.

Inference: So, J lives on the bottommost floor. E lives on 8th floor.

The final arrangement is as follows:

Floors	Persons
11	G
10	D
9	A
8	E
7	K
6	B
5	H
4	F
3	I

2	C
1	J

5 persons live between I and A.

Hence, option d.

38. How many persons live below D?

A -

9

B -

4

C -

7

D -

1

E -

None

Solution

Starting point: Start with the direct hints, four persons live above K, who lives either above or below G.

Clues: A lives 3 floors above B, who lives just above H. H lives on a prime numbered floor. J lives on an odd numbered floor below B.

Inference: H either lives on 2nd or 5th floor.

Case 1: When G lives below K. One person lives between J and I, so this case is not possible.

Floors	Persons
11	

10	
9	A
8	
7	K
6	B
5	H
4	
3	G
2	D
1	J

Case 2: When G lives above K. One person lives between J and I, so case 2(a) is not possible.

Floors	Case 2(a)	Case 2(b)
11	G	G
10	D	D
9		A
8		
7	K	K
6	A	B

5		H
4		
3	B	I/J
2	H	
1	J	J/I

Clues: Neither F nor E lives adjacent to J. More than three persons live between C and E.

Inference: So, J lives on the bottommost floor. E lives on 8th floor.

The final arrangement is as follows:

Floors	Persons
11	G
10	D
9	A
8	E
7	K
6	B
5	H
4	F
3	I

2	C
1	J

9 persons live below D.

Hence, option a.

39. Who lives on the 8th floor?

A -

E

B -

H

C -

D

D -

Cannot be determined

Solution

Starting point: Start with the direct hints, four persons live above K, who lives either above or below G.

Clues: A lives 3 floors above B, who lives just above H. H lives on a prime numbered floor. J lives on an odd numbered floor below B.

Inference: H either lives on 2nd or 5th floor.

Case 1: When G lives below K. One person lives between J and I, so this case is not possible.

Floors	Persons
11	
10	

9	A
8	
7	K
6	B
5	H
4	
3	G
2	D
1	J

Case 2: When G lives above K. One person lives between J and I, so case 2(a) is not possible.

Floors	Case 2(a)	Case 2(b)
11	G	G
10	D	D
9		A
8		
7	K	K
6	A	B
5		H

4		
3	B	I/J
2	H	
1	J	J/I

Clues: Neither F nor E lives adjacent to J. More than three persons live between C and E.

Inference: So, J lives on the bottommost floor. E lives on 8th floor.

The final arrangement is as follows:

Floors	Persons
11	G
10	D
9	A
8	E
7	K
6	B
5	H
4	F
3	I
2	C

1	J
---	---

E lives on the 8th floor.

Hence, option a.

North-south facing sitting arrangement

(40-43) Directions: Answer the questions based on the information given below.

Fourteen persons are sitting at an equal distance in parallel rows, such that, A, B, C, D, E, F and G are sitting in row 1 facing north and S, T, U, V, W, X, and Y are sitting in row 2 facing south. Both the rows are facing each other.

D is sitting 3rd to the left of A, who is sitting opposite to the person, who is sitting adjacent to X. W is sitting 2nd to the right of V. X is sitting 3rd from one of the ends. W is sitting opposite to B. Three persons are sitting between B and C. One person is sitting between C and E, who is not sitting in the left of A. G is not sitting adjacent to B. U is sitting immediately right of Y. S is not sitting opposite to F.

40. Find the odd one out.

A -

W

B -

D

C -

E

D -

Y

Solution

Starting point: Start placing A, D and X. And X is sitting 3rd from one of the end.

Clues: W is sitting 2nd to the right of V. W is sitting opposite to B. Three persons are sitting between B and C. One person is sitting between C and E, who is not sitting in the left of A.

Inference: X is sitting 3rd from the left or right end. E must be sitting in the right of A.

There are two possible cases:

Case 1: When X is sitting 3rd from the left end (considering all are facing north). V cannot be placed in this case, so this case is not possible.

		X				W
D		C	A	E		B

Case 2(a): When X is sitting 3rd from the right end (considering all are facing north). V cannot be placed in this arrangement, so this case is not possible.

				X		W
D		C	A	E		B

Case 2(b): When X is sitting 3rd from the right end (considering all are facing north).

W		V		X		
B		D		C	A	E

Clues: G is not sitting adjacent to B. U is sitting immediately right of Y. S is not sitting opposite to F.

Inference: G is sitting adjacent to C. S is sitting opposite to G. Y is sitting at the extreme end.

The final arrangement is as follows:

W	T	V	S	X	U	Y
B	F	D	G	C	A	E

All of them are sitting at the extreme ends, except D.

Hence, option b.

41. ____ is sitting opposite to V.

A -

D

B -

F

C -

E

D -

G

Solution

Starting point: Start placing A, D and X. And X is sitting 3rd from one of the end.

Clues: W is sitting 2nd to the right of V. W is sitting opposite to B. Three persons are sitting between B and C. One person is sitting between C and E, who is not sitting in the left of A.

Inference: X is sitting 3rd from the left or right end. E must be sitting in the right of A.

There are two possible cases:

Case 1: When X is sitting 3rd from the left end (considering all are facing north). V cannot be placed in this case, so this case is not possible.

		X				W
D		C	A	E		B

Case 2(a): When X is sitting 3rd from the right end (considering all are facing north). V cannot be placed in this arrangement, so this case is not possible.

				X		W
D		C	A	E		B

Case 2(b): When X is sitting 3rd from the right end (considering all are facing north).

W		V		X		
B		D		C	A	E

Clues: G is not sitting adjacent to B. U is sitting immediately right of Y. S is not sitting opposite to F.

Inference: G is sitting adjacent to C. S is sitting opposite to G. Y is sitting at the extreme end.

The final arrangement is as follows:

W	T	V	S	X	U	Y
B	F	D	G	C	A	E

D is sitting opposite to V.

Hence, option a.

42. What is the position of T with respect to U?

A -

4th to the left

B -

2nd to the right

C -

4th to the right

D -

3rd to the left

E -

5th to the right

Solution

Starting point: Start placing A, D and X. And X is sitting 3rd from one of the end.

Clues: W is sitting 2nd to the right of V. W is sitting opposite to B. Three persons are sitting between B and C. One person is sitting between C and E, who is not sitting in the left of A.

Inference: X is sitting 3rd from the left or right end. E must be sitting in the right of A.

There are two possible cases:

Case 1: When X is sitting 3rd from the left end (considering all are facing north). V cannot be placed in this case, so this case is not possible.

		X				W
D		C	A	E		B

Case 2(a): When X is sitting 3rd from the right end (considering all are facing north). V cannot be placed in this arrangement, so this case is not possible.

				X		W
D		C	A	E		B

Case 2(b): When X is sitting 3rd from the right end (considering all are facing north).

W		V		X		
B		D		C	A	E

Clues: G is not sitting adjacent to B. U is sitting immediately right of Y. S is not sitting opposite to F.

Inference: G is sitting adjacent to C. S is sitting opposite to G. Y is sitting at the extreme end.

The final arrangement is as follows:

W	T	V	S	X	U	Y
B	F	D	G	C	A	E

T is sitting 4th to the right of U.

Hence, option c.

43. ____ is sitting adjacent to X.

A -

S

B -

Y

C -

T

D -

W

E -

V

Solution

Starting point: Start placing A, D and X. And X is sitting 3rd from one of the end.

Clues: W is sitting 2nd to the right of V. W is sitting opposite to B. Three persons are sitting between B and C. One person is sitting between C and E, who is not sitting in the left of A.

Inference: X is sitting 3rd from the left or right end. E must be sitting in the right of A.

There are two possible cases:

Case 1: When X is sitting 3rd from the left end (considering all are facing north). V cannot be placed in this case, so this case is not possible.

		X				W
D		C	A	E		B

Case 2(a): When X is sitting 3rd from the right end (considering all are facing north). V cannot be placed in this arrangement, so this case is not possible.

				X		W
D		C	A	E		B

Case 2(b): When X is sitting 3rd from the right end (considering all are facing north).

W		V		X		
B		D		C	A	E

Clues: G is not sitting adjacent to B. U is sitting immediately right of Y. S is not sitting opposite to F.

Inference: G is sitting adjacent to C. S is sitting opposite to G. Y is sitting at the extreme end.

The final arrangement is as follows:

W	T	V	S	X	U	Y
B	F	D	G	C	A	E

S is sitting adjacent to X.

Hence, option a.

Hexagonal sitting arrangement

(44-47) Directions: Answer the questions based on the information given below.

Six persons, L, M, N, O, P and Q are sitting at the corners of a hexagonal table. Some of them are facing the centre, while others are facing away from the centre. Each of them like different colors, Green, Red, Yellow, Blue, Pink and Black.

Q is sitting 2nd to the right of the person, who likes Green and both of them are facing the same direction. O is sitting to the immediate right of Q. One person is sitting between P and L, who likes Red. Neither M nor N is sitting adjacent to O, who is facing the opposite direction of M. Person, who likes Black, is sitting opposite to the one, who likes Blue. M doesn't sit immediately left of P.

Person, who likes Pink, is not sitting 2nd to the right of M. Person sitting adjacent to P likes Yellow. Person, who likes Yellow is not facing away from the centre.

44. Find the odd one out.

A -

NP

B -

LO

C -

OQ

D -

QL

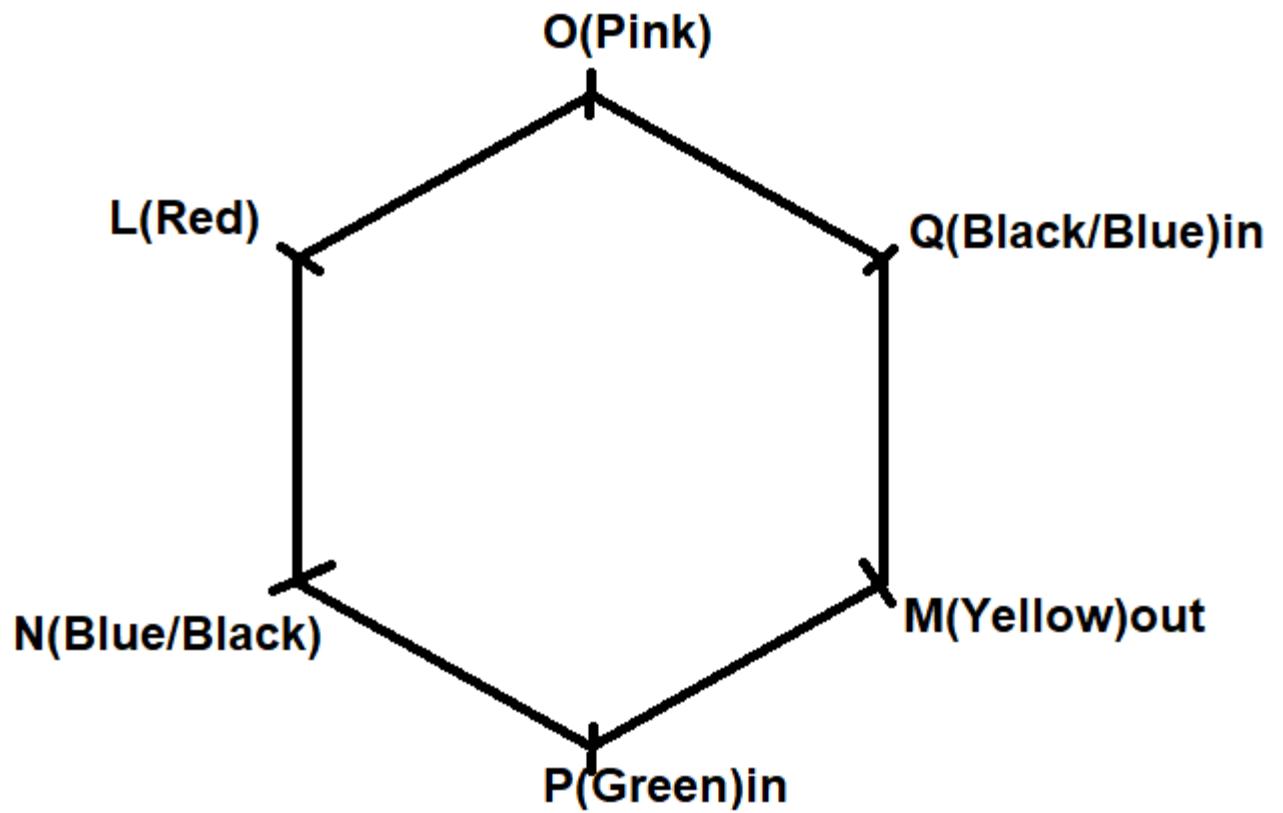
Solution

Starting point: Start placing Q and the person, who likes Green. They are either facing towards or away from the centre. O is sitting immediate right of Q.

Clues: One person is sitting between P and L, who likes Red. Neither M nor N is sitting adjacent to O, who is facing the opposite direction of M. Person, who likes Black is sitting opposite to the one, who likes Blue. M doesn't sit immediately left of P. Person sitting adjacent to P likes Yellow. Person, who likes Yellow is not facing away from the centre.

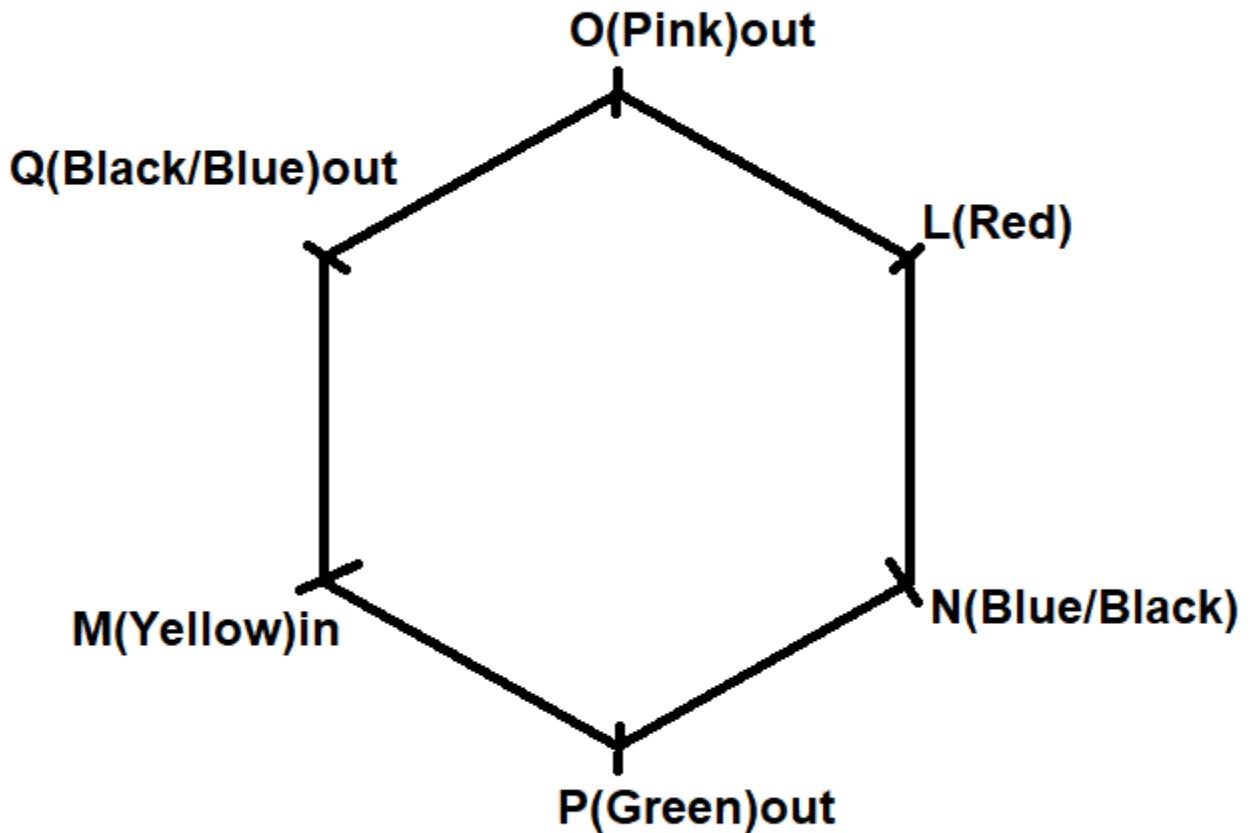
Inference: If L and P are sitting opposite to Q and adjacent to Q, then M and N cannot be placed in the arrangement, so P likes Green. So, M likes Yellow.

Case 1: When Q is facing the centre. Person, who likes Yellow is not facing away from the centre, so this case is not possible.



Case 2: When Q is facing away from the centre.

The final arrangement is as follows:



All of them are sitting adjacent to each other, except Q and L.

Hence, option d.

45. How many persons are sitting between L and Q, when counted from the left of L?

A -
2

B -

3

C -
1

D -

cannot be determined

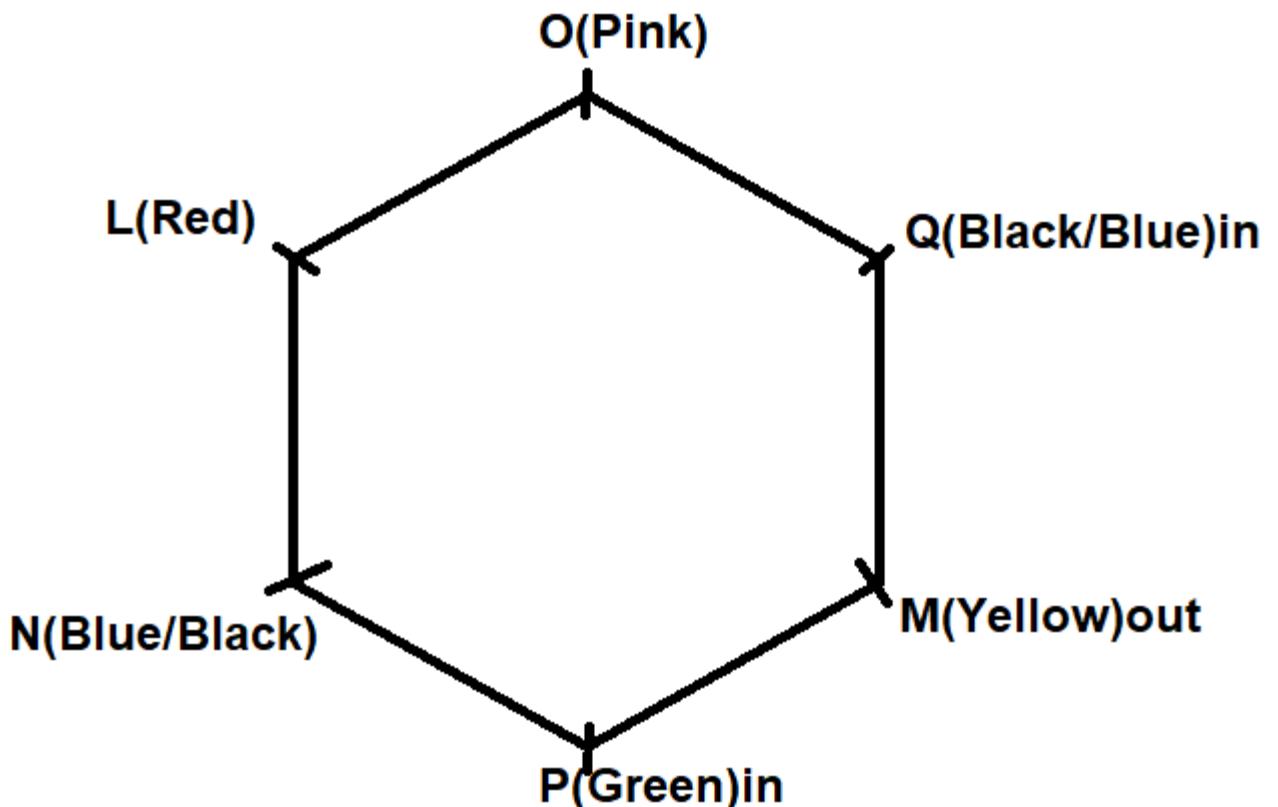
Solution

Starting point: Start placing Q and the person, who likes Green. They are either facing towards or away from the centre. O is sitting immediate right of Q.

Clues: One person is sitting between P and L, who likes Red. Neither M nor N is sitting adjacent to O, who is facing the opposite direction of M. Person, who likes Black is sitting opposite to the one, who likes Blue. M doesn't sit immediately left of P. Person sitting adjacent to P likes Yellow. Person, who likes Yellow is not facing away from the centre.

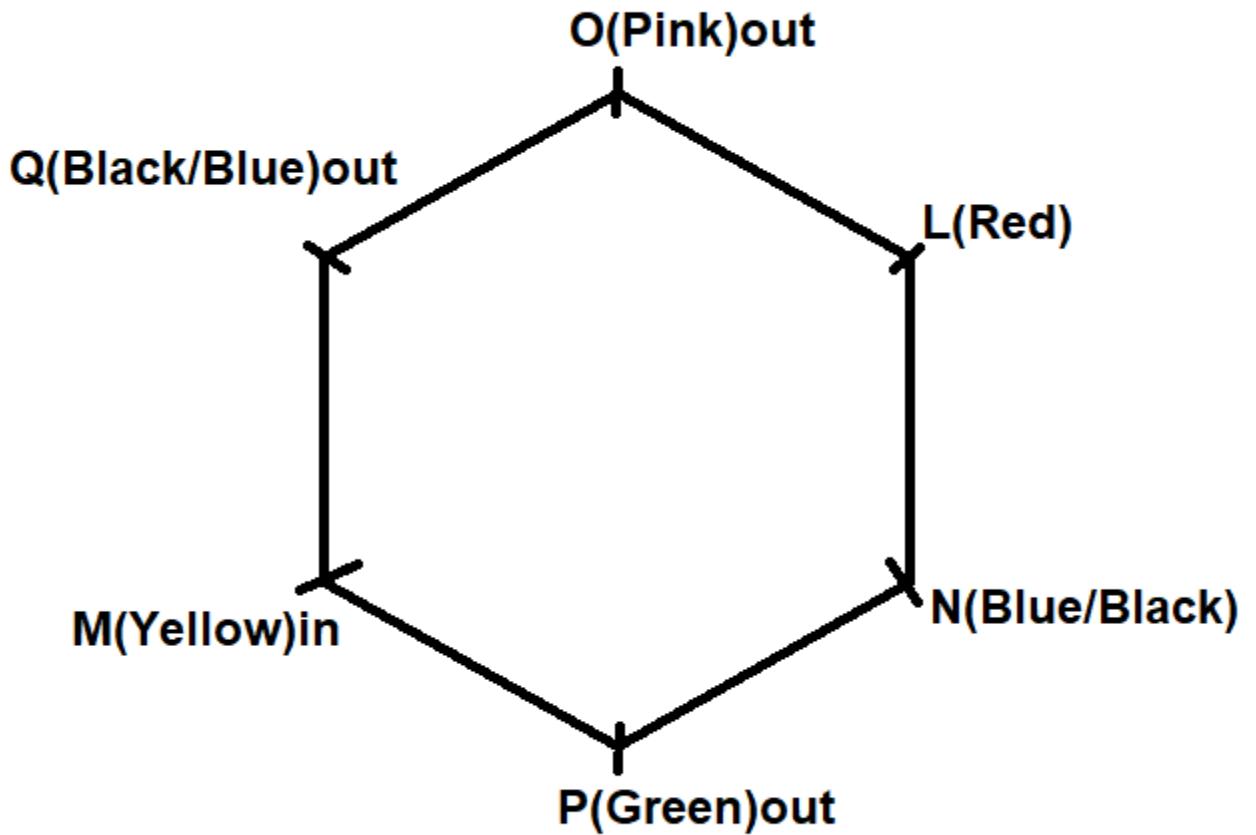
Inference: If L and P are sitting opposite to Q and adjacent to Q, then M and N cannot be placed in the arrangement, so P likes Green. So, M likes Yellow.

Case 1: When Q is facing the centre. Person, who likes Yellow is not facing away from the centre, so this case is not possible.



Case 2: When Q is facing away from the centre.

The final arrangement is as follows:



L is facing either towards or away from the centre.

Hence, option D.

46. ____ likes Pink.

A -

M

B -

P

C -

Q

D -

O

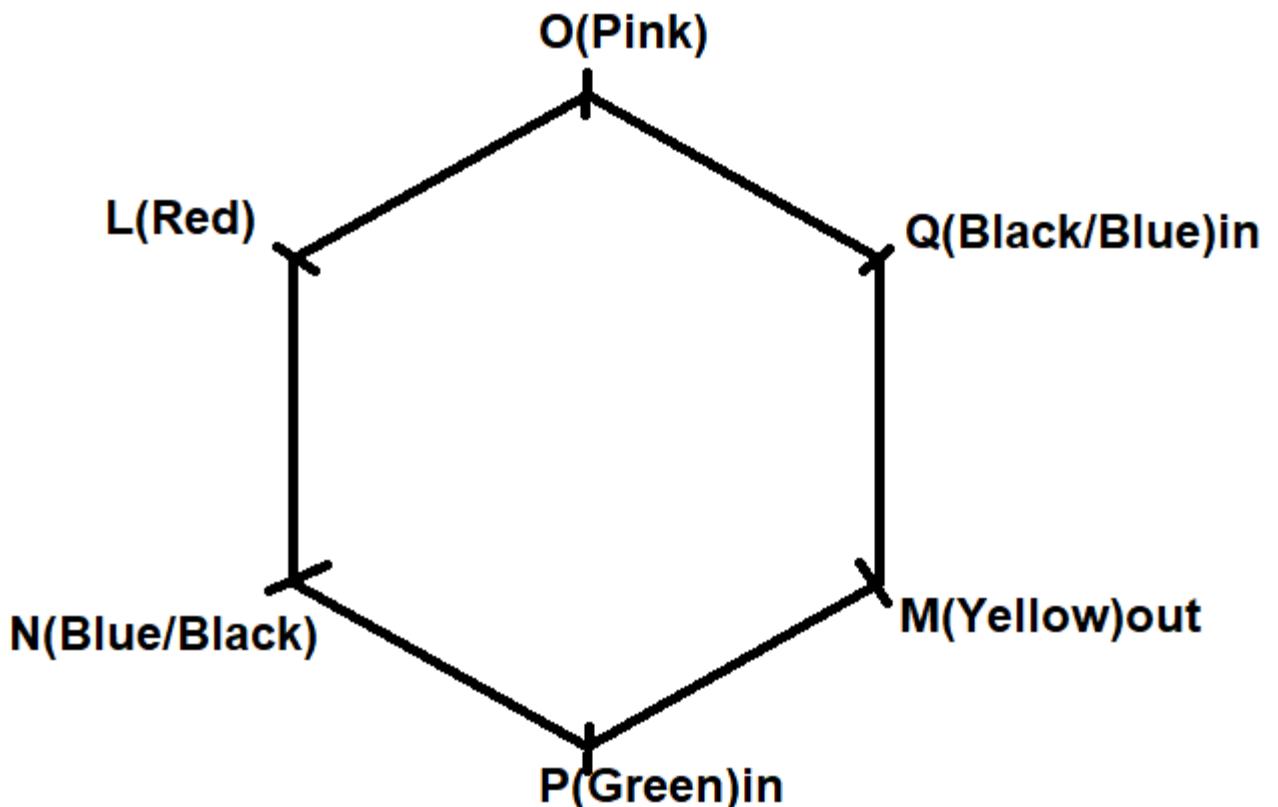
Solution

Starting point: Start placing Q and the person, who likes Green. They are either facing towards or away from the centre. O is sitting immediate right of Q.

Clues: One person is sitting between P and L, who likes Red. Neither M nor N is sitting adjacent to O, who is facing the opposite direction of M. Person, who likes Black is sitting opposite to the one, who likes Blue. M doesn't sit immediately left of P. Person sitting adjacent to P likes Yellow. Person, who likes Yellow is not facing away from the centre.

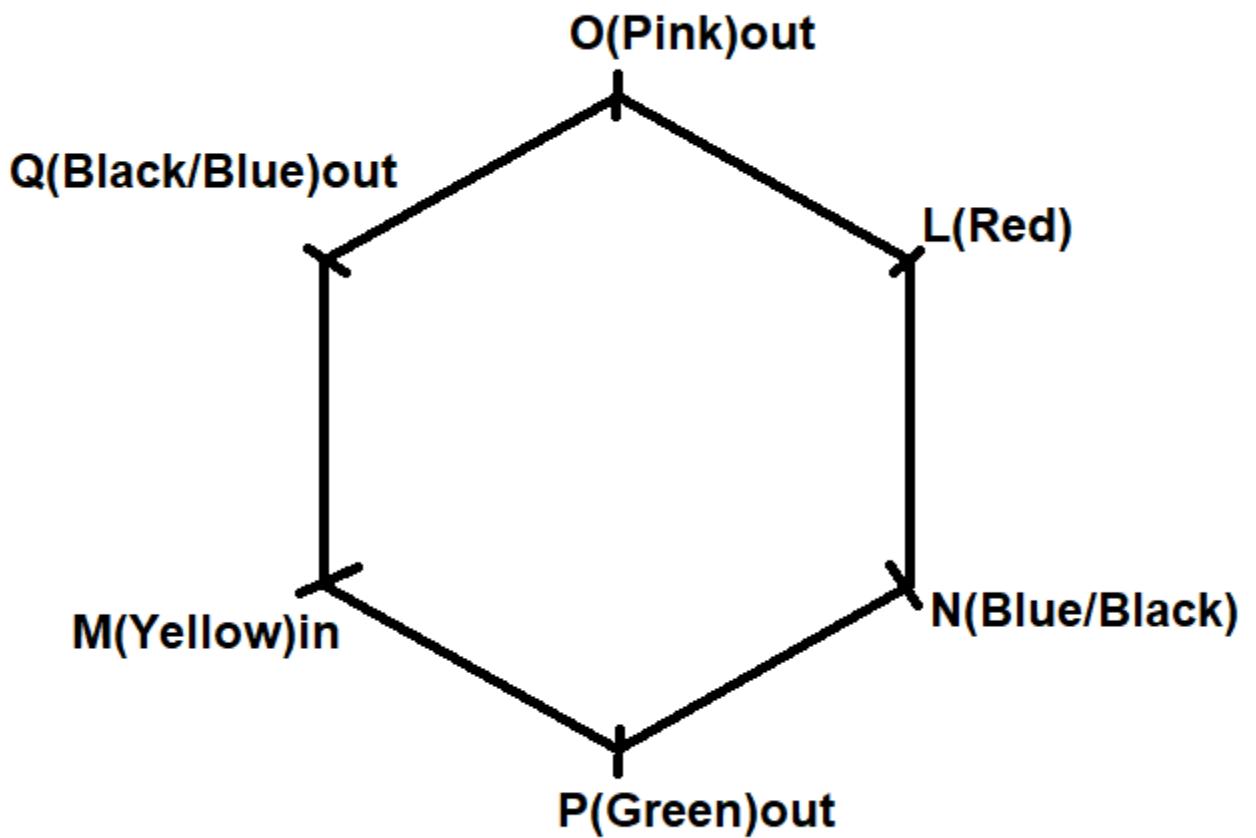
Inference: If L and P are sitting opposite to Q and adjacent to Q, then M and N cannot be placed in the arrangement, so P likes Green. So, M likes Yellow.

Case 1: When Q is facing the centre. Person, who likes Yellow is not facing away from the centre, so this case is not possible.



Case 2: When Q is facing away from the centre.

The final arrangement is as follows:



O likes Pink.

Hence, option d.

47. ____ is sitting adjacent to the person, who is sitting 3rd to the right of O.

A -

N

B -

Q

C -

L

D -

P

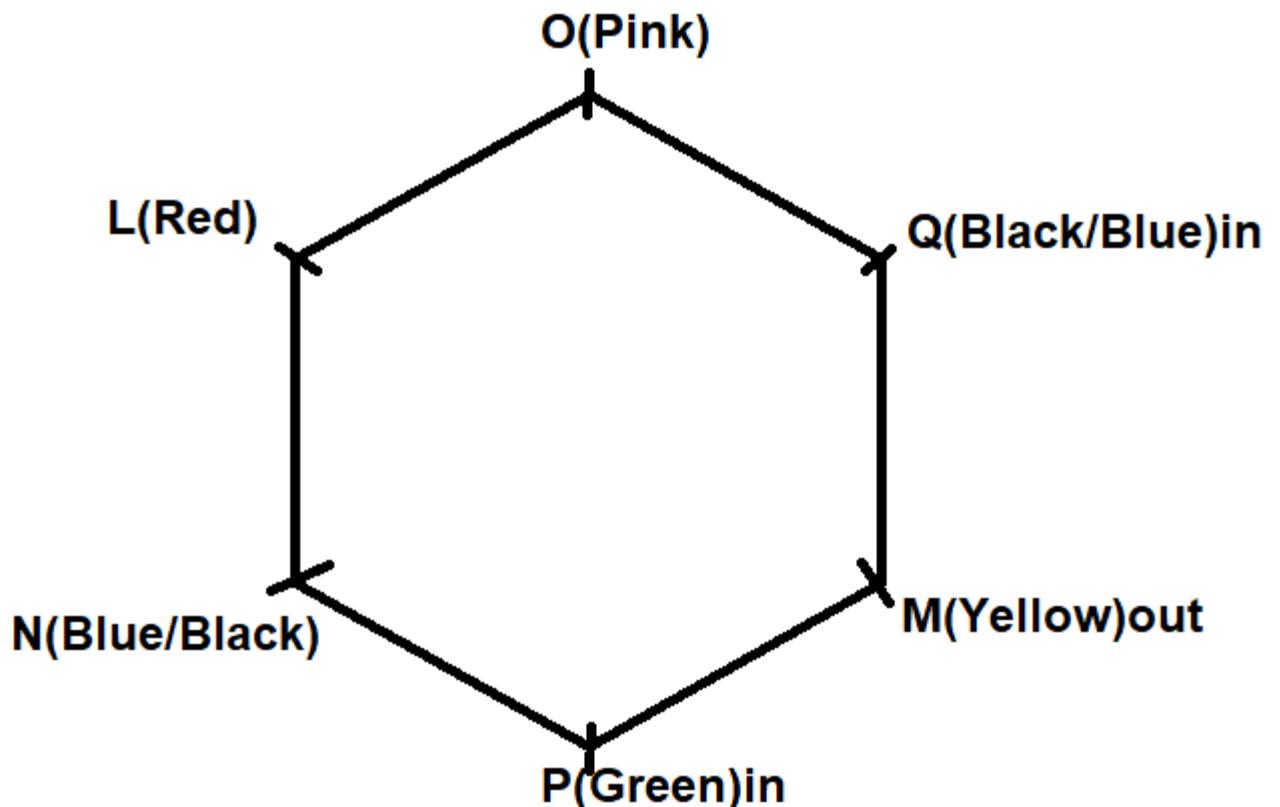
Solution

Starting point: Start placing Q and the person, who likes Green. They are either facing towards or away from the centre. O is sitting immediate right of Q.

Clues: One person is sitting between P and L, who likes Red. Neither M nor N is sitting adjacent to O, who is facing the opposite direction of M. Person, who likes Black is sitting opposite to the one, who likes Blue. M doesn't sit immediately left of P. Person sitting adjacent to P likes Yellow. Person, who likes Yellow is not facing away from the centre.

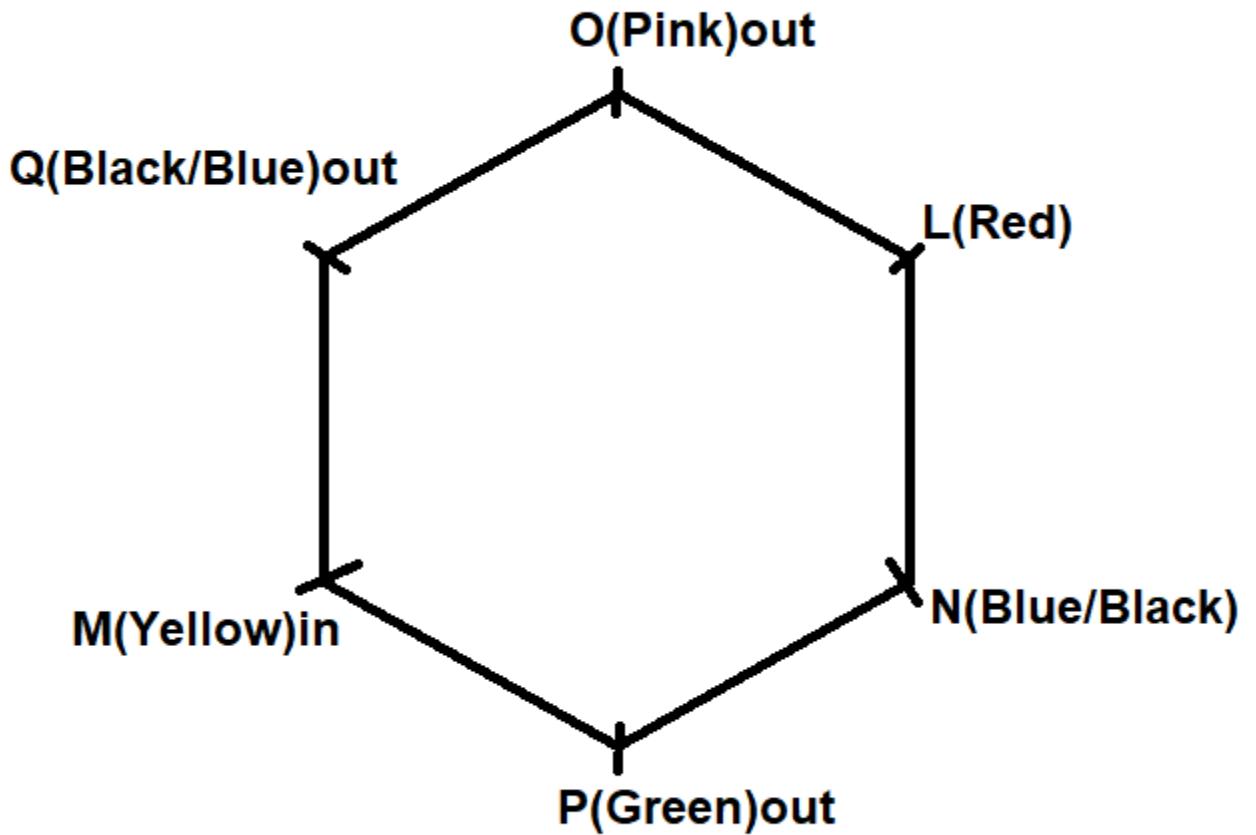
Inference: If L and P are sitting opposite to Q and adjacent to Q, then M and N cannot be placed in the arrangement, so P likes Green. So, M likes Yellow.

Case 1: When Q is facing the centre. Person, who likes Yellow is not facing away from the centre, so this case is not possible.



Case 2: When Q is facing away from the centre.

The final arrangement is as follows:



N is sitting adjacent to P, who is sitting 3rd to the right of O.

Hence, option a.

Logical inequalities

48. In the question, assuming the given statements to be true, find which of the conclusion (s) among given three conclusions is /are definitely true and then give your answer accordingly.

Statements: $X \leq J = 7$; $9 < X \geq 5$; $V < 7 \leq D$

Conclusions:

I. $9 < 7$

II. $D \geq X$

III. $V < 5$

A -

Only conclusion I is true.

B -

Both conclusions I and II are true.

C -

Both conclusions I and III are true.

D -

Only conclusion II is true.

Solution

Given statements: $X \leq J = 7$; $9 < X \geq 5$; $V < 7 \leq D$

On combining, we get

$9 < X \leq J = 7 \leq D$; $V < 7 = J \geq X \geq 5$

Conclusions:

I. $9 < 7$: True (As $9 < X \leq J = 7$, so $9 < 7$)

II. $D \geq X$: True (As $X \leq J = 7 \leq D$, so $D \geq X$)

III. $V < 5$: False (As $V < 7 = J \geq X \geq 5$, the relation between V and 5 can't be determined)

Hence, option b.

Alphabet test

49. How many pairs of letters are there in the word 'DETECTIVES' which has as many letters between them in the word as in the alphabetical series?

A -

Three

B -

Two

C -

One

D -

Zero

Solution

Given: DETECTIVES

DE, and TV are the two pairs which have as many letters between them in the given word 'DETECTIVES' as in the alphabetical series.

Hence, option b.

50. In the question below there are four statements followed by three conclusions I, II and III. You have to take the four given statements to be true even if they seem to be at variance from commonly known facts and then decide which of the given conclusions logically follows from the four statements disregarding commonly known facts.

Statements:

No FJJ are HJJ.

A few HJJ are LJJ

Every LJJ is YJJ.

1% YJJ are EJJ.

Conclusions:

I. A few LJJ are not FJJ.

II. Some FJJ being YJJ is a possibility.

III. No EJJ are LJJ.

A -

Only conclusion I follows

B -

Both conclusion I and conclusion II follow.

C -

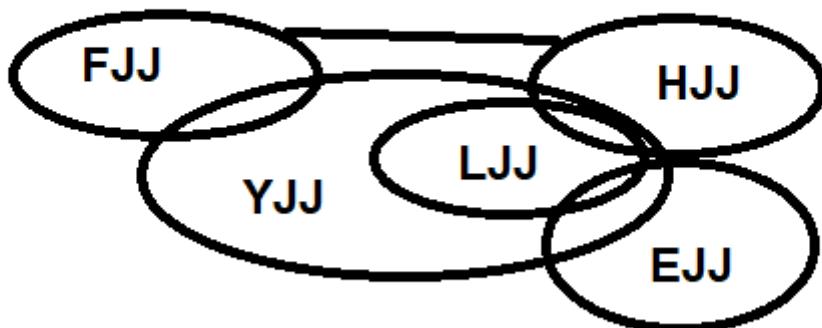
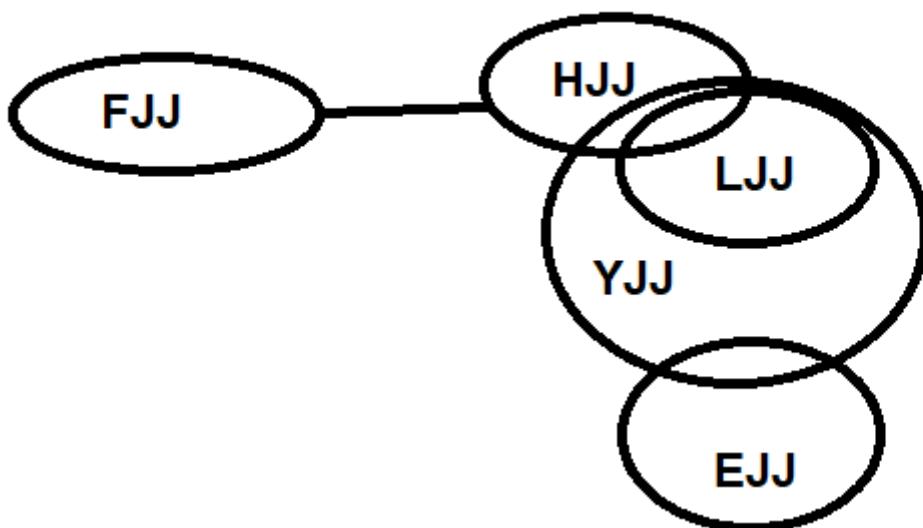
Both conclusion II and conclusion III follow.

D -

Only conclusion II follows

Solution

Following figure can be formed:



From the figure, both conclusion I and conclusion II follow.

Hence, option b.

(51-52) Directions: Answer the questions based on the information given below.

Nine persons, J, K, L, M, N, O, P, Q and R have different number of boxes.

A@2 means 2 persons have less boxes than A.

A%B means A has less boxes than only B.

A&5 means A has more boxes than 5 persons.

L has more boxes than P and N. At most 2 persons have more boxes than J. P has more boxes than Q. N doesn't have the lowest number of boxes.

K@2; R%M; O&5

51. How many persons have lesser number of boxes than J?

A -

3

B -

4

C -

6

D -

5

Solution

Clues: L has more boxes than P and N. At most 2 persons have more boxes than J. P has more boxes than Q. N doesn't have the lowest number of boxes.

K@2; R%M; O&5

Inference: K has 3rd lowest number of boxes. M has highest number of boxes. R has more boxes than J, who has 3rd highest number of boxes. O has more boxes than 5 persons.

The final arrangement is as follows:

M > R > J > O > L > P/N > K > N/P > Q

6 persons have lesser number of boxes than J.

Hence, option c.

52. Who has the 2nd lowest number of boxes?

A -

N

B -

P

C -

Q

D -

Cannot be determined

Solution

Clues: L has more boxes than P and N. At most 2 persons have more boxes than J. P has more boxes than Q. N doesn't have the lowest number of boxes.

K@2; R%M; O&5

Inference: K has 3rd lowest number of boxes. M has highest number of boxes. R has more boxes than J, who has 3rd highest number of boxes. O has more boxes than 5 persons.

The final arrangement is as follows:

M > R > J > O > L > P/N > K > N/P > Q

Either N or P has the 2nd lowest number of boxes.

Hence, option d.

Coding-decoding

(53-54) Directions: Answer the questions based on the information given below.

In a certain code of language,

'profits and margins list' is written as 'bkj mkj aqr cdr'

'price and profits here' is written as 'bkj aqr pir ghr'

'tender and margins now' is written as 'jkl aqr cdr tyr'

'companies small profits here' is written as 'rte qit bkj pir'

53.What is the code of "and"?

A -

cdr

B -

aqr

C -
mkj

D -
pir

Solution

From statement I, II and III, we conclude that 'and' is coded as 'aqr'.

From statement I and III, we conclude that 'margins' is coded as 'cdr'.

From statement III only, we conclude that 'tender' and 'now' is coded as 'tyr' and 'jkl'.

From statement I only, we conclude that 'list' is coded as 'mkj'.

From statement II and IV, 'profits' is coded as 'bkj'

From statement II only, 'price' is coded as 'ghr'

From statement IV only, we conclude that 'small' and 'companies' is coded as 'qit' and 'rte'.

The final table is shown below:

W or d	pr ofi ts	a n d	mar gins	li st	pr ic e	h er e	ten der	no w	com panie s	sm all
Co de	bkj	a q r	cdr	m kj	gh r	pi r	tyr /jkl	jkl /ty r	rte/q it	qit /rt e

The code of the word 'and' is 'aqr'.

Hence, option b.

54. Directions: Answer the questions based on the information given below.

In a certain code of language,

'profits and margins list' is written as 'bjk mkj aqr cdr'

'price and profits here' is written as 'bjk aqr pir ghr'

'tender and margins now' is written as 'jkl aqr cdr tyr'

'companies small profits here' is written as 'rte qit bkj pir'

What is the code of the word 'small'?

A -

rte

B -

cdr

C -

pqr

D -

Can't be determined

Solution

From statement I, II and III, we conclude that 'and' is coded as 'aqr'.

From statement I and III, we conclude that 'margins' is coded as 'cdr'.

From statement III only, we conclude that 'tender' and 'now' is coded as 'tyr' and 'jkl'.

From statement I only, we conclude that 'list' is coded as 'mkj'.

From statement II and IV, 'profits' is coded as 'bkj'

From statement II only, 'price' is coded as 'ghr'

From statement IV only, we conclude that 'small' and 'companies' is coded as 'qit' and 'rte'.

The final table is shown below:

Word	profits	and	margins	list	price	here	tender	now	companies	small
Code	bkj	aqr	cdr	mkj	ghr	pir	tyr/jkl	jkl/tyr	rte/qit	qit/rte

The code of the word ‘small’ is either ‘qit’ or ‘rte’

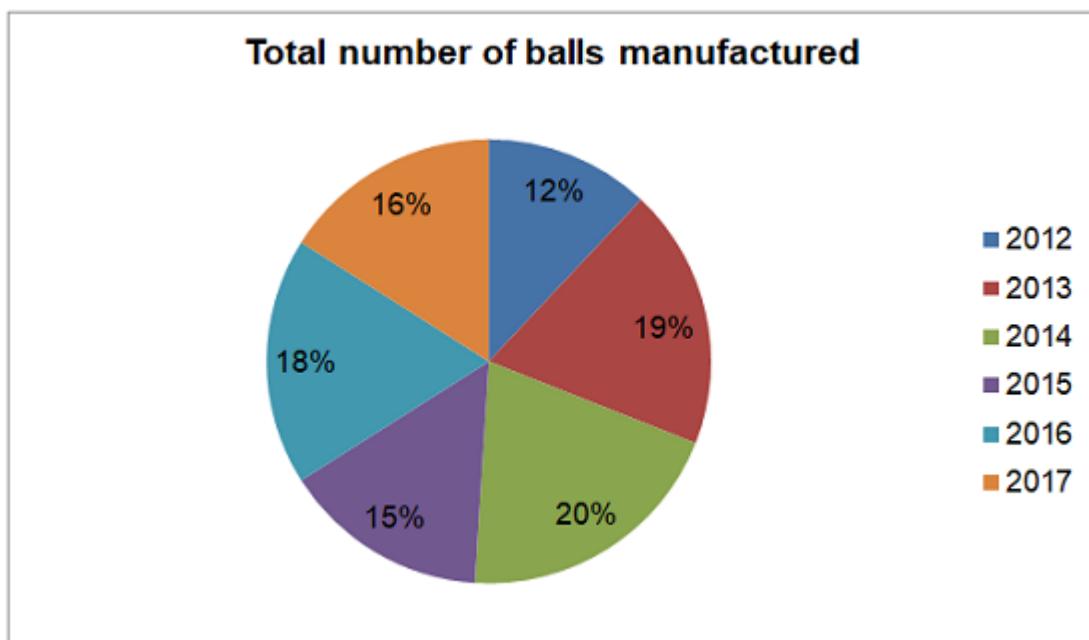
Hence, option d.

Numerical ability

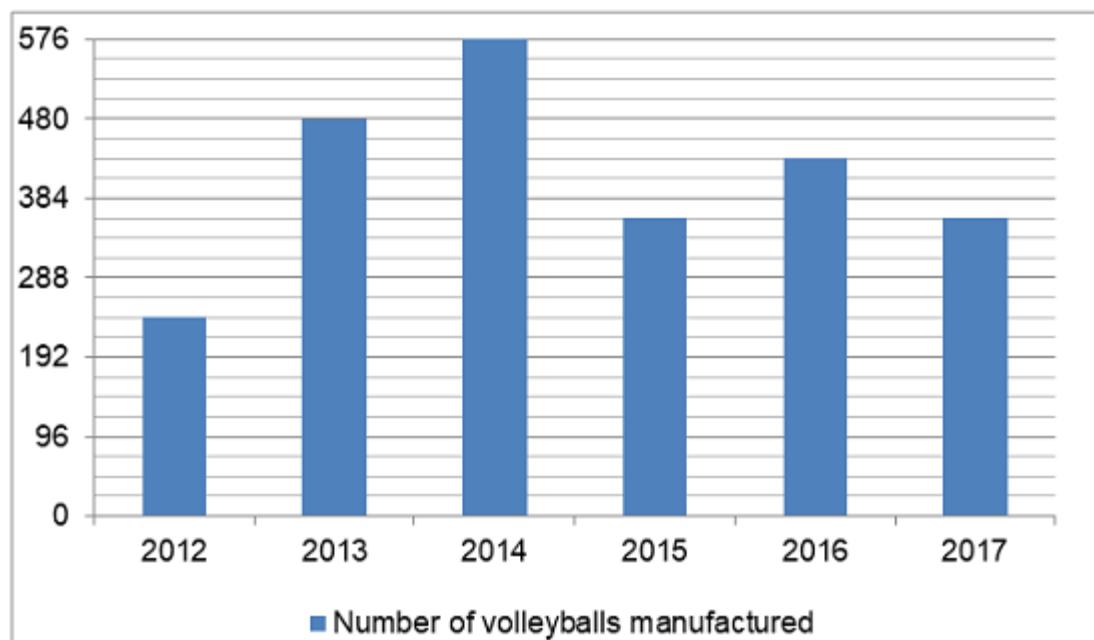
Data interpretation (pie chart, bar graphs on percentages & absolute values)

(55-57) Directions: Answer the questions based on the information given below.

A company manufactures two types of balls i.e. volleyball and football over six different years. The pie chart given below shows the percentage distribution of total number of balls manufactured by the company over the years. Total number of balls manufactured in all six years together is 4500.



The bar graph given below shows the number of volleyballs manufactured by the company in the respective years.



55. What is the ratio of number of volleyballs to number of footballs manufactured in 2015?

A -
6:5

B -
8:7

C -
9:7

D -
7:5

Solution

Years	Total number of balls manufactured	Number of volleyballs manufactured	Number of footballs manufactured
2012	$0.12 \times 4500 = 540$	240	$540 - 240 = 300$
2013	$0.19 \times 4500 = 855$	480	$855 - 480 = 375$
2014	$0.20 \times 4500 = 900$	576	$900 - 576 = 324$

2015	$0.15 \times 4500 = 675$	360	$675 - 360 = 315$
2016	$0.18 \times 4500 = 810$	432	$810 - 432 = 378$
2017	$0.16 \times 4500 = 720$	360	$720 - 360 = 360$

Desired Ratio = 360:315 = 8:7

Hence, option b.

56. 60% of the balls manufactured in 2013, 2015 and 2017 together are sold for charity purpose. Find total number of balls sold for charity purpose in these three years.

A -

750

B -

1250

C -

1350

D -

900

Solution

Years	Total number of balls manufactured	Number of volleyballs manufactured	Number of footballs manufactured
2012	$0.12 \times 4500 = 540$	240	$540 - 240 = 300$
2013	$0.19 \times 4500 = 855$	480	$855 - 480 = 375$
2014	$0.20 \times 4500 = 900$	576	$900 - 576 = 324$
2015	$0.15 \times 4500 = 675$	360	$675 - 360 = 315$

2016	$0.18 \times 4500 = 810$	432	$610 - 432 = 378$
2017	$0.16 \times 4500 = 720$	360	$720 - 360 = 360$

Total number of balls sold for charity purpose = $0.60 \times (855 + 675 + 720) = 0.60 \times 2250 = 1350$

Hence, option c.

57. Number of volleyballs manufactured in 2013 is how much percent more/less than the number of footballs manufactured in the same year?

A -
24%

B -
28%

C -
32%

D -
26%

Solution

Years	Total number of balls manufactured	Number of volleyballs manufactured	Number of footballs manufactured
2012	$0.12 \times 4500 = 540$	240	$540 - 240 = 300$
2013	$0.19 \times 4500 = 855$	480	$855 - 480 = 375$
2014	$0.20 \times 4500 = 900$	576	$900 - 576 = 324$
2015	$0.15 \times 4500 = 675$	360	$675 - 360 = 315$
2016	$0.18 \times 4500 = 810$	432	$610 - 432 = 378$

2017	$0.16 \times 4500 = 720$	360	$720 - 360 = 360$
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$$\text{Desired Percentage} = [(480 - 375)/375] \times 100 = 28\%$$

Hence, option b.

Q1 & Q2 comparison on Problems on trains, quadratic equations

58. In the question, Quantity I and Quantity II are given. You have to solve both the quantities to establish the correct relation between Quantity-I and Quantity-II and choose the correct option.

Quantity-I: A train travelling with a speed of 'x' m/s can cross a pole as well as a platform of length 324 metres in 12 seconds and 28.2 seconds respectively.
Find the value of x.

Quantity-II: Find the value of 'x' if $x^2 - 27x + 140 = 0$

A -

Quantity-I > Quantity-II

B -

Quantity-I < Quantity-II

C -

Quantity-I \leq Quantity-II

D -

Quantity-I \geq Quantity-II

Solution

Quantity I:

Let length of train is 'l' metres

$$\text{So, } l = 12x$$

$$\text{And, } l + 324 = 28.2x$$

$$\text{So, } 12x + 324 = 28.2x$$

$$\text{Or, } 16.2x = 324$$

$$\text{Or, } x = 20$$

$$\text{So, Quantity I} = 20$$

Quantity II:

$$x^2 - 27x + 140 = 0$$

$$x^2 - 20x - 7x + 140 = 0$$

$$x(x - 20) - 7(x - 20) = 0$$

$$(x - 20)(x - 7) = 0$$

$$x = 20, 7$$

So, Quantity II = 20 or 7

Therefore, Quantity I \geq Quantity II

Hence, option d.

Mixtures & allegations

59. A 432 ml of mixture contains milk and water in the ratio of 5:4 respectively. If 25% of the mixture is taken out and x ml of water and $(2x - 40)$ ml of milk is added into the remaining mixture then the quantity of milk in the final mixture will be 76 ml more than that of water. Find the value of x .

A -

60

B -

75

C -

100

D -

80

Solution

Quantity of milk in 432 ml of mixture = $5/9 \times 432 = 240$ ml

Quantity of water in 432 ml of mixture = $4/9 \times 432 = 192$ ml

According to question;

$$0.75 \times 240 + 2x - 40 = 0.75 \times 192 + x + 76$$

$$\text{Or, } 180 + 2x - 40 = 144 + x + 76$$

Or, $x = 80$

Hence, option d.

Time & work

60. Tap A can fill 75% of the tank in 42 minutes while tap A and B together can fill the same tank in 96 minutes. Find the time in which 75% of completely filled tank will be emptied by tap B.

A -

100.8 minutes

B -

112.8 minutes

C -

80.8 minutes

D -

120.8 minutes

Solution

Total time taken by tap A to fill the tank = $42/0.75 = 56$ minutes

Let total capacity of the tank = 672 litres

Quantity of water filled by tap A in one minute = $672/56 = 12$ litres

Quantity of water filled by tap A and B together in one minute = $672/96 = 7$ litres

Quantity of water emptied by tap B in one minute = $12 - 7 = 5$ litres

Desired time = $(0.75 \times 672)/5 = 100.8$ minutes

Hence, option a.

Ratios & proportions

61. A bag contains 688 coins consisting of 1 rupee, 50-paise and 25-paise coins, and their values being in the ratio of 10:12:13 respectively. Find the value of 50-paise, 1 rupee and 25-paise coins in the bag respectively.

A -

96, 80, 104

B -
80, 96, 104

C -
104, 80, 96

D -
80, 96, 104

Solution

Let value of 1 rupee, 50-paise and 25-paise coins be Rs. $10x$, $12x$ and $13x$ respectively

$$\text{Number of 1 rupee coins} = 1 \times 10x = 10x$$

$$\text{Number of 50-paise coins} = 12x \times 2 = 24x$$

$$\text{Number of 25-paise coins} = 13x \times 4 = 52x$$

$$\text{So, } 10x + 24x + 52x = 688$$

$$86x = 688$$

$$x = 8$$

Therefore, values of 1 rupee, 50-paise and 25-paise coins are Rs. 80, Rs. 96 and Rs. 104 respectively.

Hence, option a.

Partnership

62. A and B entered into a business with a total investment of Rs. 4750. After one year, A and B made additional investments of Rs. 300 and Rs. 280 respectively. If the ratio of the profit shares of A to B is 5:3 then find the initial investment made by B.

A -
Rs. 3000

B -
Rs. 1750

C -
Rs. 3500

D -

Rs. 2250

Solution

Let initial investment made by A is Rs. x

Initial investment made by B = Rs. $(4750 - x)$

Ratio of profit share of A to B = $[x + x + 300] : [4750 - x + 4750 - x + 280]$

So, $(2x + 300) / (9780 - 2x) = 5/3$

Or, $(x + 150) / (4890 - x) = 5/3$

Or, $3x + 450 = 24450 - 5x$

Or, $8x = 24000$

Or, $x = 3000$

So, initial investment made by B = $4750 - 3000 = \text{Rs. } 1750$

Hence, option b.

Problems on trains

63. Train A and Train B of lengths 140 metres and 160 metres respectively can cross each other in 30 seconds and 5 seconds while moving in same and opposite directions respectively. Find the distance travelled by the train A in 7 hours 30 minutes if the speed of train A is more than that of train B.

A -

950 km

B -

875 km

C -

945 km

D -

925 km

Solution

Let speed of train A and train B be 'x' m/s and 'y' m/s respectively.

So, $(140 + 160) / (x + y) = 5$

$$\text{And, } (140 + 160)/(x - y) = 30$$

$$x - y = 300/30 = 10 \dots \dots \dots (2)$$

Solving (1) and (2), we get

$$x = 35 \text{ m/s} \text{ and } y = 25 \text{ m/s}$$

$$\text{Speed of train A} = 35 \times 18/5 = 126 \text{ km/h}$$

Desired distance = $126 \times 7.5 = 945$ km

Hence, option c.

Boats & streams

64. Ratio of speed of a boat in still water to speed of stream is 14:3 respectively. If a boat can travel a distance of 99 km upstream and 119 km downstream together in 8 hours then find the total time taken by the boat to cover 84 km in still water and 51 km in downstream.

A -

3.5 hours

B -

5.5 hours

C -

4.5 hours

D -

2.5 hours

Solution

Let speed of boat in still water and speed of stream is $14x$ km/h and $3x$ km/h respectively.

$$\text{Speed of boat in upstream} = 14x - 3x = 11x \text{ km/h}$$

$$\text{Speed of boat in downstream} = 14x + 3x = 17x \text{ km/h}$$

According to question;

$$\frac{99}{11x} + \frac{119}{17x} = 8$$

$$\text{Or, } \frac{9}{x} + \frac{7}{x} = 8$$

$$\text{Or, } x = 2$$

$$\text{Speed of boat in still water} = 14 \times 2 = 28 \text{ km/h}$$

$$\text{Speed of boat in downstream} = 17 \times 2 = 34 \text{ km/h}$$

$$\text{Desired time} = \frac{84}{28} + \frac{51}{34} = 3 + 1.5 = 4.5 \text{ hours}$$

Hence, option c.

Volumes

65. A right angle triangle with base 24 cm and height 7 cm is rotated along its base. Find the total surface area of the cone thus formed.

A -

$$724 \text{ cm}^2$$

B -

$$704 \text{ cm}^2$$

C -

$$744 \text{ cm}^2$$

D -

$$684 \text{ cm}^2$$

Solution

$$\text{Slant height of the cone} = \text{hypotenuse of the triangle} = \sqrt{7^2 + 24^2} = 25 \text{ cm}$$

When the triangle is rotated along its base then:

$$\text{Radius of cone formed} = \text{height of the triangle} = 7 \text{ cm}$$

$$\text{Height of the cone formed} = \text{base of the triangle} = 24 \text{ cm}$$

$$\text{Desired Area} = \pi \times 7 \times 25 + \pi \times 7 \times 7 = 22 \times 25 + 22 \times 7 = 550 + 154 = 704 \text{ cm}^2$$

Hence, option b.

Compound interest

66. Jyoti took a loan from a bank at 20% p.a. compound interest compounded annually for 3 years. She returned Rs. 3500 at the end of second year and

cleared all her dues by returning Rs. 1416 at the end of third year. Find the amount of loan taken by Jyoti from the bank.

A -
Rs. 3050

B -
Rs. 3750

C -
Rs. 3450

D -
Rs. 3250

Solution

Let amount of loan taken by Jyoti from the bank is Rs. x

According to question;

$$1.20 \times \{1.44 \times x - 3500\} = 1416$$

$$\text{Or, } 1.44x - 3500 = 1180$$

$$\text{Or, } 1.44x = 4680$$

$$\text{Or, } x = 3250$$

Hence, option d.

Averages

67. Average rainfall for a week is 44 cm while average rainfall except Thursday and Friday is 35.8 cm. Total rainfall on Friday is 15% more than total rainfall on Thursday. Find the rainfall on Thursday.

A -
58 cm

B -
62 cm

C -
50 cm

D -
60 cm

Solution

Total rainfall for the whole week = $44 \times 7 = 308$ cm

Total rainfall on Thursday and Friday = $308 - 5 \times 35.8 = 129$ cm

Let rainfall on Thursday be 'x' cm

Rainfall on Friday = $1.15x$ cm

According to question,

$$x + 1.15x = 129$$

$$\text{Or, } 2.15x = 129$$

$$\text{Or, } x = 60 \text{ cm}$$

Hence, option d.

Ratios & proportions

68. Ratio of monthly income to monthly expenditure of A is 16:7. Ratio of monthly savings of A and B is 5:8 respectively and monthly savings of B is 20% more than his monthly expenditure. If monthly income of B is Rs. 10560, then find monthly income of A.

A -

Rs. 6000

B -

Rs. 7200

C -

Rs. 6400

D -

Rs. 5600

Solution

Let monthly income and monthly expenditure of A is Rs. $16x$ and Rs. $7x$ respectively.

Monthly savings of A = $16x - 7x = \text{Rs. } 9x$

Monthly savings of B = $8/5 \times 9x = \text{Rs. } 72x/5$

Monthly expenditure of B = $(72x/5)/1.2$ = Rs. $12x$

So, $12x + 72x/5 = 10560$

Or, $x + 6x/5 = 880$

Or, $x + 1.2x = 880$

Or, $2.2x = 880$

Or, $x = 400$

So, monthly income of A = 400×16 = Rs. 6400

Hence, option c.

Problems on ages

69. When Anup was born, his father was 36 years elder than his elder brother while his sister was 22 years younger than his mother. If Anup's brother is 8 years elder than Anup and his mother is 6 years younger than his father then find the age of Anup's sister when Anup will be 10 years old.

A -

18 years

B -

24 years

C -

16 years

D -

26 years

Solution

Let age of Anup when he was born = 0 years

Age of Anup's brother = $0 + 8 = 8$ years

Age of Anup's father = $8 + 36 = 44$ years

Age of Anup's mother = $44 - 6 = 38$ years

Age of Anup's sister = $38 - 22 = 16$ years

Age of Anup's sister when Anup will be 10 years old = $16 + 10 = 26$ years

Hence, option d.

Averages

70. There are four numbers a, b, c and d. The average of 'a', 'b' and 'c' is 110 and the average of 'b', 'c' and 'd' is 90. If the value of 'd' is 60, then find the value of 'a'.

- A -
120
- B -
150
- C -
90
- D -
180

Solution

According to the question,

$$(a + b + c) = 110 \times 3 = 330 \dots\dots\dots (1)$$

$$\text{Also, } (b + c + d) = 90 \times 3 = 270 \dots\dots\dots (2)$$

On subtracting equation (2) from (1), we get

$$(a - d) = 60$$

$$\text{Or, } a = 60 + 60 = 120$$

Hence, option a.

Time & distance

71. Ram heard the sound of a bullet which is fired 2.4 km away from him after 25 seconds from the time of firing. Find the speed of the sound of the bullet.

- A -
84 m/s
- B -
96 m/s
- C -

72 m/s

- D -
108 m/s

Solution

$$\text{Speed of the sound of the bullet} = (2.4 \times 1000)/25 = 96 \text{ m/s}$$

Hence, option b.

Discounts

72. Find the equivalent discount of three successive discounts of 15%, 20% and 25%, respectively.

- A -
49%

- B -
52%

- C -
35%

- D -
42%

Solution

$$\text{Equivalent discount percentage of 15\% and 20\%} = 15 + 20 - (15 \times 20)/100 = 32\%$$

$$\text{Equivalent discount percentage of 32\% and 25\%} = 32 + 25 - (32 \times 25)/100 = 49\%$$

Hence, option a.

Ratios & proportions

73. The ratio of the number of lotus and Lily flowers in a pond is 8:5. When 18 lotus and 8 lily flowers were plucked, the total number of flowers left becomes 20% less than the original. Find the original number of lotus flowers in the pond.

- A -
80

B -

72

C -

50

D -

40

Solution

According to the question,

Let the number of Lotus and Lily flowers in the pond be $8x$ and $5x$ respectively.

According to the question,

$$(8x - 18 + 5x - 8) = 0.80(8x + 5x)$$

$$\text{Or, } 13x - 26 = 10.4x$$

$$\text{Or, } 2.6x = 26$$

$$\text{Or, } x = 10$$

Therefore, original number of lotus flowers = $8x = 80$

Hence, option a.

Algebra

74. If $(2p/p^2 + 2p + 1) = 1/10$, then find the value of $(p + 1/p)$.

A -

12

B -

15

C -

20

D -

18

Solution

Taking the reciprocal of the expression,

$$(p/2 + 1/2p + 1) = 10$$

$$\text{Or, } (1/2)(p + 1/p) = 9$$

$$\text{Or, } (p + 1/p) = 18$$

Hence, option d.

Simple interest

75. A certain sum gives the interest equals to $3/5^{\text{th}}$ of the sum when invested for 5 years at simple interest. Find the rate of simple interest.

A -

15%

B -

10%

C -

12%

D -

20%

Solution

Let the sum invested be Rs. x and the rate of the interest be r% p.a.

According to te question,

$$(x \times 5 \times r)/100 = 3x/5$$

$$\text{Or, } r = 12\%$$

Hence, option c.

Trigonometry (heights & distance)

76. The angle of elevation of top of a pole from the foot and top of a 50 m high building is 60° and 30° respectively. Find the height of the pole.

A -

75 metres

B -

60 metres

C -
90 metres

D -
120 metres

Solution

According to the question,

$$\text{Therefore, } \tan 60^\circ = (50 + h)/ED$$

$$\text{Or, } ED = (h + 50)/\sqrt{3}$$

$$\text{Also, } \tan 30^\circ = h/BC$$

$$\text{Or, } BC = \sqrt{3}h$$

Since,

$$ED = BC$$

$$\text{Or, } \sqrt{3}h = h + 50$$

$$\text{Or, } h = 25 \text{ m}$$

Therefore, height of the pole = $(25 + 50) = 75$ metres

Hence, option a.

Geometry (triangles)

77. The centroid of a triangle is a point where

A -
Angle bisectors of the triangle meet

B -
Altitudes of the triangle meet

C -
Medians of the triangle meet

D -
None of these

Solution

Centroid of a triangle is a point where medians of the triangle meet.

Hence, option c.

Trigonometry

78. If $\cot x = 15/8$, then find the value of $\sqrt{(1 - \cos x)/(1 + \cos x)}$.

A -

1/2

B -

1/4

C -

1/3

D -

1/6

Solution

Given $\cot x = 15/8 = b/p$

Therefore, $h = \sqrt{15^2 + 8^2}$

Or, $h = 17$

$\sqrt{(1 - \cos x)/(1 + \cos x)}$

Or, $\sqrt{(1 - \cos x)(1 - \cos x)/(1 - \cos^2 x)} = (1 - \cos x)/\sin x$

Putting the value of $\sin x = p/h$ and $\cos x = b/h$

We get, $\sqrt{(1 - \cos x)/(1 + \cos x)} = 1/4$

Hence, option b.

Data interpretation (tabular form on percentages)

79. The given table shows the monthly income of five different persons. Out of the total income, each spends certain percentage on four different items and saves the rest.

	A (Rs.)	B (Rs.)	C (Rs.)	D (Rs.)	E (Rs.)
--	---------	---------	---------	---------	---------

	36000)	42000)	24000)	48000)	56000)
Food	20%	25%	30%	15%	25%
Education	25%	15%	20%	25%	30%
Rent	30%	20%	25%	40%	20%
Travelling	10%	10%	15%	10%	15%

Find the average monthly savings of all the five persons.

A -

Rs. 4680

B -

Rs. 5420

C -

Rs. 6160

D -

Rs. 7240

Solution

$$\text{Monthly savings of 'A'} = (1 - 0.20 - 0.25 - 0.30 - 0.10) \times 36000 = 0.15 \times 36000 \\ = \text{Rs. } 5400$$

$$\text{Monthly savings of 'B'} = (1 - 0.25 - 0.15 - 0.20 - 0.10) \times 42000 = 0.30 \times 42000 \\ = \text{Rs. } 12600$$

$$\text{Monthly savings of 'C'} = (1 - 0.30 - 0.20 - 0.25 - 0.15) \times 24000 = 0.10 \times 24000 \\ = \text{Rs. } 2400$$

$$\text{Monthly savings of 'D'} = (1 - 0.15 - 0.25 - 0.40 - 0.10) \times 48000 = 0.10 \times 48000 \\ = \text{Rs. } 4800$$

$$\text{Monthly savings of 'E'} = (1 - 0.25 - 0.30 - 0.20 - 0.15) \times 56000 = 0.10 \times 56000 \\ = \text{Rs. } 5600$$

$$\text{Required average} = (5400 + 12600 + 2400 + 4800 + 5600)/5 = \text{Rs. } 6160$$

Hence, option c.

Time & work

80. 'A' and 'B' together can complete a work in 16 days. If 'B' had worked alone, then would have taken 8 days more to complete the work. How many days 'A' will take to complete the same work alone?

A -
54 days

B -
36 days

C -
48 days

D -
30 days

Solution

Time taken by 'B' to complete the work alone = $16 + 8 = 24$ days

Let the total work = 48 units (L.C.M of 16 and 24)

Efficiency of 'A' and 'B' together = $48/16 = 3$ units/day

Efficiency of 'B' = $48/24 = 2$ units/day

Therefore, efficiency of 'A' = $(3 - 2) = 1$ unit/day

Therefore, time taken by 'A' to complete the work alone = $48/1 = 48$ days

Hence, option c.

TCS NQT Mock – 2

Verbal Ability

Topic – Reading Comprehension

(1-5) Directions: Read the following passage carefully and answer the questions.

“Boredom” first became a word in 1852, with the publication of Charles Dickens’ convoluted serial, Bleak House; as an emotional state, it obviously dates back a lot further. Roman philosopher Seneca talks about boredom as a kind of nausea. And the vast amount of ancient graffiti on Roman walls is a testament to the fact that teenagers in every era deface property when they have nothing else to do.

In Christian tradition, chronic boredom was “acedia”, a sin that’s sort of a proto-sloth. The “noontime demon”, as one of its early chroniclers called it, refers to a state of being simultaneously listless and restless and was often ascribed to monks and other people who led cloistered lives. In the 18th century, boredom became a punitive tool, although the Quakers who built the first “penitentiary” probably didn’t see it that way. In 1790, they constructed a prison in Philadelphia in which inmates were kept in isolation at all hours of the day. The idea was that the silence would help them to seek forgiveness from God. In reality, it just drove them insane.

It wasn’t until the 1930s that science took an interest in boredom. In 1938, psychologist Joseph Ephraim Barmack looked at how factory workers coped with the tedium of being factory workers. Stimulants – caffeine, amphetamines, and ephedrine – was the answer. Barmack was particularly concerned with what can be termed situational boredom, the kind of boredom that is perceived as a temporary state, such as being on a long car ride. This kind of boredom is relieved by change, or, as Barmack found, drugs.

But modern psychologists think boredom might be a lot more complicated than that. It's appropriate that Dickens coined the word boredom, as literature is littered with characters for whom boredom became dangerously existential (think Madame Bovary, Anna Karenina or Jack Torrance in *The Shining*). What countless novels of the 19th and 20th century showed was that boredom has a much darker side, that it can be something much more akin to depression. Recent scientific research agrees: A host of studies have found that people who are easily bored may also be at greater risk for depression, anxiety disorders, gambling addictions, eating disorders, aggression and other psychosocial issues. Boredom can also exacerbate existing mental illness. And, according to at least one 2010 study, people who are more easily bored are two-and-a-half times more likely to die of heart disease than people who are not.

There has to be a reason for boredom and why people suffer it; one theory is that boredom is the evolutionary cousin to disgust. In *Toohey's Boredom: A Living History*, the author notes that when writers as far back as Seneca talk about boredom, they often describe it was a kind of nausea or sickness. The title of famous 20th century existentialist writer Jean-Paul Sartre's novel about existential boredom was, after all, *Nausea*. Even now, if someone is bored of something, they're "sick of it" or "fed up". So if disgust is a mechanism by which humans avoid harmful things, then boredom is an evolutionary response to harmful social situations or even their own descent into depression. Boredom, therefore, can be a kind of early warning system.

And though getting out of boredom can lead to extreme measures to alleviate it, such as drug taking or an extramarital affair, it can also lead to positive change. Boredom has found champions in those who see it as a necessary element in creativity. But how humans respond to boredom may have changed dramatically in the last century. Humans have become used to doing less to get more, achieving intense stimulation at the click of a mouse or touch of a screen. We are very used to being passively entertained. We have changed our understanding of the human condition as one of a vessel that needs to be filled. And it's become something like a drug – where we need another hit to remain at the same level of satisfaction.

There is hope, however, and it's back at the Boring Conference. Rather than turning to a quick fix – YouTube videos of funny cats, Facebook – the Boring Conference wants people to use the mundane as an impetus to creative thinking and observation. “It’s not the most amazing idea in the world, but I think it’s a nice idea – to look around, notice things,” says Ward, the conference organizer. “I guess that’s the message: Look at stuff.”

- 1) Which of the following can be understood from the example of the Quakers, who used boredom as a punitive tool?
- a) They believed that a bored person deserved to be punished.
 - b) They believed that boredom would not be forgiven by God.
 - c) They built a prison to carry out their belief, but it did not achieve the result they wanted.
 - d) They built a prison for the purpose of mentally torturing criminals and wrongdoers.

Correct Choice: c

Solution

The passage tells us how the Quakers built a prison to keep inmates in isolation, believing that this would help them to seek forgiveness from God, but it just drove them insane in reality. Refer to the lines: *“In the 18th century, boredom became a punitive tool, although the Quakers who built the first “penitentiary” probably didn’t see it that way. In 1790, they constructed a prison in Philadelphia in which inmates were kept in isolation at all hours of the day. The idea was that the silence would help them to seek forgiveness from God. In reality, it just drove them insane.”* From this, we can conclude that the experiment did not work in the way the Quakers wanted. Thus, (c) is the right answer.

A and B are incorrect as the Quakers used boredom as a punishment for a crime, not as a reason to inflict punishment. D and E are incorrect as the passage tells us that the Quakers did so under the belief that it would help inmates to seek forgiveness from God.

2) Which of the following is/ are supported by the recent research done on people who are easily bored?

1. People who are easily bored are more likely to be abused physically or sexually.
 2. People who are easily bored are at a greater risk for anxiety, depression and eating disorders.
 3. People who are easily bored are at a higher risk of heart disease than those who are not.
- a) Only 2
b) Only 1 and 2
c) Only 1 and 3
d) Only 2 and 3

Correct Choice: d

Solution

Both 2 and 3 are true as per the passage. Refer to the lines: “Recent scientific research agrees: A host of studies have found that people who are easily bored may also be at greater risk for depression, anxiety disorders, gambling addictions, eating disorders, aggression and other psychosocial issues. Boredom can also exacerbate existing mental illness. And, according to at least one 2010 study, people who are more easily bored are two-and-a-half times more likely to die of heart disease than people who are not.” Thus, (d) is the right answer.

1 is not mentioned or implied in the passage.

3) It can be understood from the passage that the author would agree with which of the following statements?

- a) People who are bored are more likely to bring about revolutions in science and technology.
- b) In today's world, people have got used to putting less effort to achieve maximum outcome, which will make people more likely to feel bored.
- c) People who are easily bored have greater brain activity than those who aren't.
- d) People who are bored are more likely to indulge in self-sabotaging behaviour like substance abuse or adultery.

Correct Choice: d

Solution

Refer to the lines: "*And though getting out of boredom can lead to extreme measures to alleviate it, such as drug taking or an extramarital affair, it can also lead to positive change.*" From these lines, we can understand that the author will agree with D. Thus, (D) is the right answer.

The information given in the passage is not sufficient to conclude whether the author will agree with A, C and B is incorrect as the author clearly believes the opposite. Refer to the lines: "*But how humans respond to boredom may have changed dramatically in the last century. Humans have become used to doing less to get more, achieving intense stimulation at the click of a mouse or touch of a screen.*" From this, we understand that people put less effort to maximise outcome out of boredom, so doing so is likely to make them feel less bored, not more.

4) As per a theory discussed in the passage, boredom can serve as a warning for which of the following?

- a) Harmful social situations
- b) Predators in the surroundings
- c) One's descent into depression
- d) Both (a) and (c)

Correct Choice: d

Solution

Refer to the lines: "*There has to be a reason for boredom and why people suffer it; one theory is that boredom is the evolutionary cousin to disgust... So if disgust is a mechanism by which humans avoid harmful things, then boredom is an evolutionary response to harmful social situations or even their own descent into depression. Boredom, therefore, can be a kind of early warning system.*" From these lines, we can understand that boredom can serve as an early warning system to protect us against dangerous social situations or against one's own descent into depression. Thus, (D) is the right answer.

5) Which of the following is opposite in meaning to the word ‘mundane’ as used in passage?

- a) Tedious
- b) Monotonous
- c) Intriguing
- d) placid

Correct Choice: c

Solution

MUNDANE means dull or uninteresting, and INTRIGUING (fascinating; interesting) is its antonym. Thus, (c) is the right answer.

Tedious - tiring. MONOTONOUS is a synonym to the given word. Placid - calm.

Topic – Jumbled Sentences

(6-7) In the question given below, rearrange the parts of the sentence in the correct order, and choose the correct option.

6) is credited to Joseph Fry, who in 1847 discovered (A)/ the creation of the first modern chocolate bar (B)/ that he could make a moldable chocolate paste (C)/ by adding melted cacao butter back into Dutch cocoa (D)

- a) CDAB
- b) CBAD
- c) BDAC
- d) BACD

Correct Choice:d

Solution

BACD is the final order. B begins the sentence by establishing the subject - the creation of the first modern chocolate bar. A follows by telling us who was the first person to create it - Joseph Fry. CD concludes as a pair, by telling us the process by which he created the first chocolate bar. Thus, (d) is the right answer.

(6-7) In the question given below, rearrange the parts of the sentence in the correct order, and choose the correct option.

7) though police officers stood in the centre (A)/ their arms, few drivers paid attention (B)/ blowing whistles and waving (C)/ of many of the most dangerous crossroads (D)

- a) ACBD
- b) ADCB
- c) DCBA
- d) DABC

Correct Choice: b

Solution

ADCB is the final order. AD begins the sentence as a pair, by telling us about the presence of police officers in the middle of the crossroads. C follows by telling us what the police officers were doing. B concludes by contradicting this, and telling us that despite the presence of the police officers, drivers were negligent. Thus, (b) is the right answer.

Topic – Phrase Replacement

(8-9) Which of the following phrases (1), (2), and (3) given below each sentence should replace the phrase printed in bold letters to make the sentence grammatically correct? Choose the best option among the five given alternatives that reflect the correct use of the phrase in the context of the grammatically correct sentence. If the sentence is correct as it is, mark ‘No Improvement’ as the answer.

8) In Algeria, public sector workers have mounted a general strike for higher wages and to improve working conditions.

1. Improved working conditions
2. an improvement in working conditions
3. Having improved working conditions

- a) No Improvement
- b) Only 1 and 2
- c) Only 1 and 3
- d) Only 2 and 3

Correct Choice: b

Solution

The sentence tells us how public sector workers in Algeria have begun a strike for higher wages and better working conditions. Both 1 and 2 can replace the highlighted phrase to convey the requisite meaning. Thus, (b) is the right answer.

3 is incorrect as the participle construction HAVING + VERB should have a dependent clause, which is not the case in this sentence. The highlighted

phrase is incorrect as the preposition FOR will take a noun phrase after it rather than an infinitive verb phrase. When the conjunction AND is used, both the clauses joined by it must have the same form. Since, HIGHER WAGES is a noun phrase, the clause following AND should also be a noun phrase.

(8-9) Which of the following phrases (1), (2), and (3) given below each sentence should replace the phrase printed in bold letters to make the sentence grammatically correct? Choose the best option among the five given alternatives that reflect the correct use of the phrase in the context of the grammatically correct sentence. If the sentence is correct as it is, mark 'No Improvement' as the answer.

9) It was the only general strike in British history, as union leaders such as Ernest Bevin, who had coordinated the strike, in consideration of a mistake.

1. Considered it a mistake
 2. Believed it was mistaken
 3. Believed it had been a mistake
-
- a) No Improvement
 - b) Only 1 and 2
 - c) Only 1 and 3
 - d) Only 2 and 3

Correct Choice: c

Solution

The highlighted phrase is incorrect as the sentence tells us how Ernest Bevin, who has coordinated the strike believed that it was a mistake. Both 1 and 3 can replace the highlighted phrase to convey the requisite meaning. Thus, (c) is the right answer.

2 is incorrect as MISTAKEN means wrong in one's opinion or judgement; this phrase would convey the meaning that strike was wrong in its judgement, which is absurd. The highlighted phrase is incorrect as it does not fit grammatically in the sentence to lend meaning to its context.

Topic – Error Location

(10-11) Read the given sentence to find out whether there are any grammatical/ contextual errors in them. The errors, if any, will be in two of the phrases of the sentences and the combination of those parts will be the answer of that question. If no part in the sentence has an error then, mark ‘no error’ as your answer. Consider part (1) in bold as grammatically correct. (Ignore punctuation errors if any)

10) If the EU really wants (1)/ to help Africa, during the (A)/ pandemic and beyond, it (B)/ must urgently reformed its trade policies (C)/ to ensuring a level playing field and enhance food security. (D)

- a) AB
- b) BC
- c) BD
- d) CD

Correct Choice: d

Solution

(d) is the right answer. In C, we need to replace REFORMED with REFORM as we need a verb in its base form to follow the modal verb MUST. In D, we need to replace ENSURING with ENSURE as we need a verb in its base form to fit in the infinitive construction of TO+VERB.

(10-11) Read the given sentence to find out whether there are any grammatical/ contextual errors in them. The errors, if any, will be in two of the phrases of the sentences and the combination of those parts will be the answer of that question. If no part in the sentence has an error then, mark 'no error' as your answer. Consider part (1) in bold as grammatically correct. (Ignore punctuation errors if any)

11) The company blamed (1)/ heavier than anticipate usage (A)/ of the service for the temporary (B)/ suspension, after existing (C)/ customers was unable to login. (D)

- a) AB
- b) BC
- c) BD
- d) AD

Correct Choice: d

Solution

(d) is the right answer. In A, we need to replace ANTICIPATE with ANTICIPATED. We need an adjective here to modify the noun USAGE. ANTICIPATE is a verb. It cannot modify a noun. In D, we need to replace WAS with WERE to agree with the plural subject (CUSTOMERS).

Topic – Cloze Test

(12-16) Directions: In the following passage, some of the words have been highlighted in bold. First read the passage and try to understand what it is about. Then replace the highlighted words with the correct option in order to make grammatical and contextual sense. In case the highlighted word is correct as it is, mark ‘No Improvement’ as the right answer.

Identifying a mass extinction event is not the same as explaining it, however, and the catastrophe at the end of the Permian is perhaps the most puzzling mystery of all time. Scientists have (A) imposed a list of possible extinction triggers, including global cooling, bombardment by cosmic rays, the shifting of continents and asteroid impacts, but many paleontologists' prime (B) inspect now is the intense eruptions of the Siberian Traps, volcanoes that covered nearly 800,000 square miles of what is now Russia with lava. The earth was much warmer at the end of the Permian than it is today. The atmosphere was relatively rich in carbon dioxide, which (C) furnished a hothouse world in which there were almost no glaciers. The eruption of the Siberian Traps would have added vast amounts of greenhouse gases into the atmosphere, causing further global warming, increasing ocean acidity and lowering atmospheric oxygen levels. These (D) drastic changes to the atmosphere and resulting environmental effects would have caused many organisms to asphyxiate from the lack of oxygen, while others would have died from an excess of carbon dioxide in the blood or otherwise perished because they were physiologically unable to cope with these new conditions. Where rich, diverse communities of organisms once (E) strived, the extinction left only “crisis” communities of a few species that proliferated in the vacant habitats.

12) (A)

- a) Provoked
- b) Deposed
- c) Disposed
- d) proposed

Correct Choice: d

Solution

We need a past participle form verb to fit in the present perfect tense construction HAVE + VERB. PROPOSED (suggested) will fit here as the sentence tells us how scientists have suggested several possible causes for the extinction event. Thus, (d) is the right answer.

Provoked - instigated. Deposed - remove from office suddenly and forcefully. Disposed - cast away; threw. Imposed - forced a decision on someone.

13) (B)

- a) prospect
- b) suspect
- c) suspend
- d) dissect

Correct Choice: b

Solution

We need a noun here to be modified by the adjective PRIME. SUSPECT (the factor thought to be responsible for something) will fit here as the sentence tells us how the culprits that paleontologists believe were responsible were volcanic eruptions. Thus, (b) is the right answer.

Prospect - possibility; likelihood. Suspend (verb) - terminate. Dissect (verb) - break into parts. Inspect (verb) - examine.

14) (C)

- a) fuelled
- b) festered
- c) impeded
- d) impended

Correct Choice: a

Solution

We need a verb here to link the subject ATMOSPHERE with the object A HOTHOUSE WORLD. FUELLED (gave rise to) will fit here as the sentence tells us how the carbon dioxide rich atmosphere gave rise to a hothouse world. Thus, (a) is the right answer.

Festered - decayed; rotted. Impeded - hindered. Impended - was about to happen. Furnished - decorated.

15) (D)

- a) driven
- b) dramatically
- c) disaster
- d) No Improvement

Correct Choice: d

Solution

We need an adjective to modify the noun CHANGES. DRASTIC (extreme) will fit here as the sentence tells us how the extreme changes to the atmosphere caused organisms to suffocate. Thus, (d) is the right answer.

Driven - committed. DRAMATICALLY (greatly) is an adverb. DISASTER (calamity) is a noun. Despotic - autocratic.

16) (E)

- a) Deprived
- b) Thrived
- c) Reputed
- d) derided

Correct Choice: b

Solution

We need a verb here to agree with the subject COMMUNITIES. THRIVED (flourished) will fit here as the sentence tells us how rich and diverse communities of organisms once flourished here. Thus, (b) is the right answer.

Deprived - to suffer a lack of something. Reputed (adj.) - respected; well-known. Derided - mocked. Strived - aspired.

Topic – Column1 & Column2 Connecting Sentences

17) In the following question, match the sentences beginning in Column 1 with their appropriate endings in Column 2.

Column 1	Column 2
A. Innovation in the private sector depends	D. the direction it takes must reflect social priorities.
B. If technological innovation is to serve society,	E. crucially on government funding of basic science and research labs.
C. Living standards are determined by productivity growth,	F. which in turn depends on the introduction of new technologies.

- a) A and D
- b) A and F
- c) B and D
- d) B and E

Correct Choice: c

Solution

(c) is the right answer. The correct pairs are: AE, BD and CF.

AE - *Innovation in the private sector depends crucially on government funding of basic science and research labs.* The sentence seeks to convey that innovation carried out by the private sector is dependent on the government funding of research labs.

BD - *If technological innovation is to serve society, the direction it takes must reflect social priorities.*

The sentence seeks to convey that if we want technological innovation to benefit the society then it must take into account the social priorities.

CF - *Living standards are determined by productivity growth, which in turn depends on the introduction of new technologies.* The sentence seeks to convey that the living standards of people are determined by productivity growth, which is dependent on new technologies.

Topic – Synonyms

18) In the following question, out of the four alternatives, choose the one which best expresses the meaning of the given word.

Disparage

- a) Diminish
- b) Criticize
- c) Evade
- d) Defy

Correct Choice: b

Solution

DISPARAGE means to criticise or speak unfavourably of something or someone. CRITICISE will be its synonym; Thus, (b) is the right answer.

DIMINISH means to reduce, EVADE means to avoid and DEFY means to oppose.

Topic – Phrasal Verbs / Idioms

(19-20) In the following question, a sentence is given with a phrase or idiom in brackets. Select the option given below that can replace the bracketed phrase.

19) The tenants were (kicked out) by the landlord once it came to light that they were harbouring a fugitive.

- a) kicked in
- b) kicked off
- c) kicked around
- d) No Improvement

Correct Choice: d

Solution

We need a phrasal verb here that means that the tenants were expelled by the landlord. KICKED OUT means expelled and will fit here. Thus, (d) is the right answer.

KICKED IN means to start having an effect, KICKED OFF refers to an event that started or began and KICKED AROUND means to mistreat or bully.

(19-20) In the following question, a sentence is given with a phrase or idiom in brackets. Select the option given below that can replace the bracketed phrase.

20) “Do not (pick at) your food; eat it all,” scolded the mother.

- a) pick up
- b) pick out
- c) pick with
- d) No Improvement

Correct Choice: d

Solution

We need a phrasal verb here that means to eat food in small quantities. PICK AT can be used to convey the requisite meaning. Thus, (d) is the right answer.

PICK UP means to hoist, PICK OUT means to select and PICK WITH is grammatically incorrect.

Topic – Direct Speech / Indirect Speech

(21-22) In the following question, a sentence has been given in Direct/ Indirect speech. Out of the four alternatives suggested, select the one which best expresses the same sentence in Direct/ Indirect speech.

21) "I have been to that place," he said.

- a) He said that I have been to that place.
- b) He said that I had been to that place.
- c) He said that he has been that place.
- d) He said that he had been that place

Correct Choice: d

Solution

Option (d) is the right answer. The sentence is in direct speech. To convert this sentence to the indirect speech, follow these rules: 1. Remove the comma and the inverted commas. 2. In the quoted part of the speech, change the first person subjective pronoun I to the third person subjective pronoun HE. 3. Begin the indirect speech sentence with the reporting speech clause HE SAID. 4. Put THAT between the reporting and reported speeches. 5. The present perfect tense HAVE BEEN will change to the past perfect HAD BEEN.

(21-22) In the following question, a sentence has been given in Direct/ Indirect speech. Out of the four alternatives suggested, select the one which best expresses the same sentence in Direct/ Indirect speech.

22) "Do your homework," she said to her children.

- a) She told her children to do her homework.
- b) She told her children to do their homework.
- c) She told her children to did their homework.
- d) She told her children to done their homework.

Correct Choice: b

Solution

Option (b) is the right answer. The sentence is in direct speech and in imperative mood (contains a command). To convert this sentence to the indirect speech, follow these rules: 1. Remove the comma and the inverted commas. 2. Change the reporting verb SAID to TOLD and begin the indirect speech sentence with the reporting speech clause SHE TOLD HER CHILDREN. The preposition TO will be redundant after TOLD, so it should be removed. 3. Change the second person possessive pronoun YOUR to the third person plural possessive pronoun THEIR (since the subject CHILDREN is plural). 4. In an imperative mood sentence, the verb clause will take an infinitive construction TO + VERB (to + eat) when converted to indirect speech. The infinitive construction always takes the base form of the verb (DO).

Topic – Active Voice / Passive Voice

(23-24) In the following question, a sentence has been given in Active/Passive Voice. Out of the four alternatives suggested, select the one which best expresses the same sentence in Passive/Active Voice.

23) The man had taken money from the banks.

- a) The money had been taken by the man from the banks.
- b) The money was taken by the man from the banks.
- c) The money is taken by the man from the banks.
- d) The money has been taken by the man from the banks.

Correct Choice: a

Solution

The sentence is in active voice and in past perfect tense (HAD TAKEN). Follow the rules below to convert a sentence in indicative mood to passive voice:

1. The subject clause will become the object clause. Here, the subject THE MAN will change to the object of the verb, and the object MONEY will change into the subject and begin the sentence.
2. Replace HAD TAKEN with HAD BEEN TAKEN. The passive voice construction for past perfect tense is "HAD + BEEN + past participle".
3. Add the conjunction BY before THE MAN to link the verb with its object.

Option (a) is the right answer.

(23-24) In the following question, a sentence has been given in Active/Passive Voice. Out of the four alternatives suggested, select the one which best expresses the same sentence in Passive/Active Voice.

24) You took this book from me.

- a) This book was taken from me by you.
- b) This book is learnt from me by you.
- c) This book will be learnt from me by you.
- d) This book was being learnt from me by you.

Correct Choice: a

Solution

The sentence is in active voice and in simple past tense (TAKEN). Follow the rules below to convert a sentence in indicative mood to passive voice:

1. The subject clause will become the object clause. Here, the subject pronoun YOU will change to the object form YOU, and the object THIS BOOK will change into the subject and begin the sentence.
2. Replace TAKEN with WAS TAKEN. The passive voice construction for simple past tense is "WAS/ WERE + past participle".
3. Add the conjunction BY before YOU to link the verb with its object.

Option (a) is the right answer.

Reasoning Ability

Topic – Stack Based Puzzle

(25-29) Directions: Answer the questions based on the information given below.

11 shelves are kept one above another such that bottommost shelf is numbered as 1 while the topmost as 11. Four of the shelves contains different items among shirt, T-shirt, belt and comb.

Shelf V is two shelves above shelf U and both are odd numbered shelves. There is one shelf between shelf R and shelf X, which contains Shirt. There are five shelves between shelf S and shelf Z, which is prime numbered shelf. There are two shelves between shelf Z and shelf R. Shelf S is above shelf Z and shelf P. Shelf containing T-shirt is two shelves above shelf S. Shelf containing comb is just above shelf containing belt and neither is in shelf 2. Shelf containing comb is below shelf R. Shelf V is not adjacent to shelf X. Shelf T is above shelf Q, which is above shelf Y. Shelf P is just above shelf W.

25) Which shelf is the topmost shelf?

- a) Shelf T
- b) Shelf containing Shirt
- c) Shelf P
- d) Shelf V

Correct Choice: d

Solution

Starting point: Here, we can start with the clues related to shelf S and shelf Z in order to make initial two cases.

Clues: There are five shelves between shelf S and shelf Z, which is prime numbered shelf. There are two shelves between shelf Z and shelf R. Shelf S is above shelf Z and shelf P. Shelf containing T-shirt is two shelves above shelf S. Shelf containing comb is just above shelf containing belt and neither is in shelf 2. Shelf containing comb is below shelf R. There is one shelf between shelf R and shelf X, which contains Shirt.

Inference: So, shelf S can be shelf 8 or shelf 9.

Case 1: When shelf S is shelf numbered 8.

Shelf numbers	Shelves	Items
11		
10		T-shirt
9		
8	S	
7	X	Shirt
6		
5	R	
4		Comb
3		Belt
2	Z	
1		

Case 2: When shelf S is shelf numbered 9.

	Case 2(a)		Case 2(b)	
Shelf numbers	Shelves	Items	Shelf numbers	Shelves
11		T-shirt		T-shirt
10				
9	S		S	
8	X	Shirt	X	Shirt
7				
6	R		R	
5		Comb		
4		Belt		Comb
3	Z		Z	Belt
2				
1				

Clues: Shelf V is two shelves above shelf U and both are odd numbered shelves. Shelf V is not adjacent to shelf X.

Inference: So, case 2(a) and 2(b) are rejected as shelf V cannot be placed.

	Case 1(a)		Case 1(b)	
Shelf numbers	Shelves	Items	Shelves	Items
11	V			
10		T-shirt		T-shirt
9	U			
8	S		S	
7	X	Shirt	X	Shirt
6				
5	R		R	
4		Comb		Comb
3		Belt	V	Belt
2	Z		Z	
1			U	

Clues: Shelf P is just above shelf W. Shelf T is above shelf Q, which is above shelf Y.

Inference: So, cases 1(b) would be rejected as shelf S is above shelf P.

Shelf numbers	Shelves	Items

11	V	
10	T	T-shirt
9	U	
8	S	
7	X	Shirt
6	Q	
5	R	
4	P	Comb
3	W	Belt
2	Z	
1	Y	

Shelf V is the topmost shelf.

Hence, option d.

26) Shelf T contains _____.

- a) Comb
- b) Belt
- c) T-shirt
- d) Shirt

Correct Choice: c

Solution

Starting point: Here, we can start with the clues related to shelf S and shelf Z in order to make initial two cases.

Clues: There are five shelves between shelf S and shelf Z, which is prime numbered shelf. There are two shelves between shelf Z and shelf R. Shelf S is above shelf Z and shelf P. Shelf containing T-shirt is two shelves above shelf S. Shelf containing comb is just above shelf containing belt and neither is in shelf 2. Shelf containing comb is below shelf R. There is one shelf between shelf R and shelf X, which contains Shirt.

Inference: So, shelf S can be shelf 8 or shelf 9.

Case 1: When shelf S is shelf numbered 8.

Shelf numbers	Shelves	Items
11		
10		T-shirt
9		
8	S	

7	X	Shirt
6		
5	R	
4		Comb
3		Belt
2	Z	
1		

Case 2: When shelf S is shelf numbered 9.

Shelf numbers	Case 2(a)		Case 2(b)	
	Shelves	Items	Shelf numbers	Shelves
11		T-shirt		T-shirt
10				
9	S		S	
8	X	Shirt	X	Shirt
7				
6	R		R	
5		Comb		

4		Belt		Comb
3	Z		Z	Belt
2				
1				

Clues: Shelf V is two shelves above shelf U and both are odd numbered shelves. Shelf V is not adjacent to shelf X.

Inference: So, case 2(a) and 2(b) are rejected as shelf V cannot be placed.

Shelf numbers	Case 1(a)		Case 1(b)	
	Shelves	Items	Shelves	Items
11	V			
10		T-shirt		T-shirt
9	U			
8	S		S	
7	X	Shirt	X	Shirt
6				
5	R		R	
4		Comb		Comb
3		Belt	V	Belt
2	Z		Z	

1			U	
---	--	--	---	--

Clues: Shelf P is just above shelf W. Shelf T is above shelf Q, which is above shelf Y.

Inference: So, cases 1(b) would be rejected as shelf S is above shelf P.

Shelf numbers	Shelves	Items
11	V	
10	T	T-shirt
9	U	
8	S	
7	X	Shirt
6	Q	
5	R	
4	P	Comb
3	W	Belt
2	Z	
1	Y	

Shelf T contains T-shirt.

Hence, option c.

27) How many shelves are above shelf P?

- a) Six
- b) Seven
- c) Four
- d) Five

Correct Choice: b

Solution

Starting point: Here, we can start with the clues related to shelf S and shelf Z in order to make initial two cases.

Clues: There are five shelves between shelf S and shelf Z, which is prime numbered shelf. There are two shelves between shelf Z and shelf R. Shelf S is above shelf Z and shelf P. Shelf containing T-shirt is two shelves above shelf S. Shelf containing comb is just above shelf containing belt and neither is in shelf 2. Shelf containing comb is below shelf R. There is one shelf between shelf R and shelf X, which contains Shirt.

Inference: So, shelf S can be shelf 8 or shelf 9.

Case 1: When shelf S is shelf numbered 8.

Shelf numbers	Shelves	Items
8		

11		
10		T-shirt
9		
8	S	
7	X	Shirt
6		
5	R	
4		Comb
3		Belt
2	Z	
1		

Case 2: When shelf S is shelf numbered 9.

	Case 2(a)		Case 2(b)	
Shelf numbers	Shelves	Items	Shelf numbers	Shelves
11		T-shirt		T-shirt
10				
9	S		S	

8	X	Shirt	X	Shirt
7				
6	R		R	
5		Comb		
4		Belt		Comb
3	Z		Z	Belt
2				
1				

Clues: Shelf V is two shelves above shelf U and both are odd numbered shelves. Shelf V is not adjacent to shelf X.

Inference: So, case 2(a) and 2(b) are rejected as shelf V cannot be placed.

Shelf numbers	Case 1(a)		Case 1(b)	
	Shelves	Items	Shelves	Items
11	V			
10		T-shirt		T-shirt
9	U			
8	S		S	
7	X	Shirt	X	Shirt
6				

5	R		R	
4		Comb		Comb
3		Belt	V	Belt
2	Z		Z	
1			U	

Clues: Shelf P is just above shelf W. Shelf T is above shelf Q, which is above shelf Y.

Inference: So, cases 1(b) would be rejected as shelf S is above shelf P.

Shelf numbers	Shelves	Items
11	V	
10	T	T-shirt
9	U	
8	S	
7	X	Shirt
6	Q	
5	R	
4	P	Comb
3	W	Belt
2	Z	

1	Y	
---	---	--

Seven shelves are above shelf P.

Hence, option b.

28) Which shelf is just below shelf Z?

- a) Shelf R
- b) Shelf Y
- c) Shelf T
- d) Shelf Q

Correct Choice: b

Solution

Starting point: Here, we can start with the clues related to shelf S and shelf Z in order to make initial two cases.

Clues: There are five shelves between shelf S and shelf Z, which is prime numbered shelf. There are two shelves between shelf Z and shelf R. Shelf S is above shelf Z and shelf P. Shelf containing T-shirt is two shelves above shelf S. Shelf containing comb is just above shelf containing belt and neither is in shelf 2. Shelf containing comb is below shelf R. There is one shelf between shelf R and shelf X, which contains Shirt.

Inference: So, shelf S can be shelf 8 or shelf 9.

Case 1: When shelf S is shelf numbered 8.

Shelf numbers	Shelves	Items
11		
10		T-shirt
9		

8	S	
7	X	Shirt
6		
5	R	
4		Comb
3		Belt
2	Z	
1		

Case 2: When shelf S is shelf numbered 9.

	Case 2(a)		Case 2(b)	
Shelf numbers	Shelves	Items	Shelf numbers	Shelves
11		T-shirt		T-shirt
10				
9	S		S	
8	X	Shirt	X	Shirt
7				
6	R		R	

5		Comb		
4		Belt		Comb
3	Z		Z	Belt
2				
1				

Clues: Shelf V is two shelves above shelf U and both are odd numbered shelves. Shelf V is not adjacent to shelf X.

Inference: So, case 2(a) and 2(b) are rejected as shelf V cannot be placed.

Shelf numbers	Case 1(a)		Case 1(b)	
	Shelves	Items	Shelves	Items
11	V			
10		T-shirt		T-shirt
9	U			
8	S		S	
7	X	Shirt	X	Shirt
6				
5	R		R	
4		Comb		Comb
3		Belt	V	Belt

2	Z		Z	
1			U	

Clues: Shelf P is just above shelf W. Shelf T is above shelf Q, which is above shelf Y.

Inference: So, cases 1(b) would be rejected as shelf S is above shelf P.

Shelf numbers	Shelves	Items
11	V	
10	T	T-shirt
9	U	
8	S	
7	X	Shirt
6	Q	
5	R	
4	P	Comb
3	W	Belt
2	Z	
1	Y	

Shelf Y is just below shelf Z.

Hence, option b.

29) How many shelves are between shelf T and shelf Q?

- a) Three
- b) One
- c) Two
- d) Four

Correct Choice: a

Solution

Starting point: Here, we can start with the clues related to shelf S and shelf Z in order to make initial two cases.

Clues: There are five shelves between shelf S and shelf Z, which is prime numbered shelf. There are two shelves between shelf Z and shelf R. Shelf S is above shelf Z and shelf P. Shelf containing T-shirt is two shelves above shelf S. Shelf containing comb is just above shelf containing belt and neither is in shelf 2. Shelf containing comb is below shelf R. There is one shelf between shelf R and shelf X, which contains Shirt.

Inference: So, shelf S can be shelf 8 or shelf 9.

Case 1: When shelf S is shelf numbered 8.

Shelf numbers	Shelves	Items
11		
10		T-shirt
9		
8	S	

7	X	Shirt
6		
5	R	
4		Comb
3		Belt
2	Z	
1		

Case 2: When shelf S is shelf numbered 9.

Shelf numbers	Case 2(a)		Case 2(b)	
	Shelves	Items	Shelf numbers	Shelves
11		T-shirt		T-shirt
10				
9	S		S	
8	X	Shirt	X	Shirt
7				
6	R		R	
5		Comb		

4		Belt		Comb
3	Z		Z	Belt
2				
1				

Clues: Shelf V is two shelves above shelf U and both are odd numbered shelves. Shelf V is not adjacent to shelf X.

Inference: So, case 2(a) and 2(b) are rejected as shelf V cannot be placed.

Shelf numbers	Case 1(a)		Case 1(b)	
	Shelves	Items	Shelves	Items
11	V			
10		T-shirt		T-shirt
9	U			
8	S		S	
7	X	Shirt	X	Shirt
6				
5	R		R	
4		Comb		Comb
3		Belt	V	Belt
2	Z		Z	

1			U	
---	--	--	---	--

Clues: Shelf P is just above shelf W. Shelf T is above shelf Q, which is above shelf Y.

Inference: So, cases 1(b) would be rejected as shelf S is above shelf P.

Shelf numbers	Shelves	Items
11	V	
10	T	T-shirt
9	U	
8	S	
7	X	Shirt
6	Q	
5	R	
4	P	Comb
3	W	Belt
2	Z	
1	Y	

Three shelves are between shelf T and shelf Q.

Hence, option a.

Topic – North - South Facing Sitting Arrangement

(30-34) Directions: Answer the questions based on the information given below.

Eight persons A, B, C, D, E, F, G and H are sitting in row facing either north or south. Number of persons facing north is more than number of persons facing south. Persons at the extreme ends face north. Not more than two adjacent persons face in same direction. C and D sit second to the left of each other. At least three persons sit between A and G, who faces south. B sits third to the right of C. A is not adjacent to F. E faces south and sits at least two places away from C. One person sits between D and F. E is not to the immediate left of B.

30) Find the odd one out.

- a) B
- b) H
- c) F
- d) G

Correct Choice: d

Solution

Starting point: Here, we can start directly by C and D such that either of them face south or north.

Clues: C and D sit second to the left of each other. B sits third to the right of C. One person sits between D and F.

Inference: So, B and F must be at the extreme end.

Case 1: When C faces south.

B(North)			C(South)		D(North)		F(North)
----------	--	--	----------	--	----------	--	----------

Case 2: When C faces north.

F(North)		D(South)		C(North)			B(North)
----------	--	----------	--	----------	--	--	----------

Clues: At least three persons sit between A and G, who faces south. A is not adjacent to F.

Case 1(a):

B(North)		A	C(South)		D(North)	G(South)	F(North)
----------	--	---	----------	--	----------	----------	----------

Case 1(b):

B(North)	A		C(South)		D(North)	G(South)	F(North)
----------	---	--	----------	--	----------	----------	----------

Case 2(a):

F(Nort h)	G(Sout h)	D(Sout h)	(Nort h)	C(Nort h)	A(Sout h)		B(Nort h)
-----------	-----------	-----------	----------	-----------	-----------	--	-----------

Case 2(b):

F(Nort h)	G(Sout h)	D(Sout h)	(Nort h)	C(Nort h)	(Sout h)	A	B(Nort h)
-----------	-----------	-----------	----------	-----------	----------	---	-----------

Clues: E faces south and sits at least two places away from C. E is not immediate left of B.

Inference: So, case 1(b) and 2(b) would be rejected. Also, case 2(a) is rejected as E is not immediate left of B. As, number of persons facing north is more than that of persons facing south. So, H must face north.

B(Nor th)	E(So uth)	A(Nor th)	C(Sou th)	H(Nor th)	D(Nor th)	G(Sou th)	F(Nor th)
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

All face north except G.

Hence, option d.

31) Who sits second to the right of C?

- a) A
- b) D
- c) E
- d) G

Correct Choice: c

Solution

Starting point: Here, we can start directly by C and D such that either of them face south or north.

Clues: C and D sit second to the left of each other. B sits third to the right of C. One person sits between D and F.

Inference: So, B and F must be at the extreme end.

Case 1: When C faces south.

B(North)			C(South)		D(North)		F(North)
----------	--	--	----------	--	----------	--	----------

Case 2: When C faces north.

F(North)		D(South)		C(North)			B(North)
----------	--	----------	--	----------	--	--	----------

Clues: At least three persons sit between A and G, who faces south. A is not adjacent to F.

Case 1(a):

B(North)		A	C(South)		D(North)	G(South)	F(North)
----------	--	---	----------	--	----------	----------	----------

Case 1(b):

B(North)	A		C(South)		D(North)	G(South)	F(North)
----------	---	--	----------	--	----------	----------	----------

Case 2(a):

F(North)	G(South)	D(South)	(North)	C(North)	A(South)		B(North)
----------	----------	----------	---------	----------	----------	--	----------

Case 2(b):

F(North)	G(South)	D(South)	(North)	C(North)	(South)	A	B(North)
----------	----------	----------	---------	----------	---------	---	----------

Clues: E faces south and sits at least two places away from C. E is not immediate left of B.

Inference: So, case 1(b) and 2(b) would be rejected. Also, case 2(a) is rejected as E is not immediate left of B. As, number of persons facing north is more than that of persons facing south. So, H must face north.

B(North)	E(South)	A(North)	C(South)	H(North)	D(North)	G(South)	F(North)
----------	----------	----------	----------	----------	----------	----------	----------

E sits second to the right of C.

Hence, option c.

32) How many persons sit between H and F?

- a) Three
- b) Four
- c) Two
- d) One

Correct Choice: c

Solution

Starting point: Here, we can start directly by C and D such that either of them face south or north.

Clues: C and D sit second to the left of each other. B sits third to the right of C. One person sits between D and F.

Inference: So, B and F must be at the extreme end.

Case 1: When C faces south.

B(North)			C(South)		D(North)		F(North)
----------	--	--	----------	--	----------	--	----------

Case 2: When C faces north.

F(North)		D(South)		C(North)		B(North)
----------	--	----------	--	----------	--	----------

Clues: At least three persons sit between A and G, who faces south. A is not adjacent to F.

Case 1(a):

B(North)		A	C(South)		D(North)	G(South)	F(North)
----------	--	---	----------	--	----------	----------	----------

Case 1(b):

B(North)	A		C(South)		D(North)	G(South)	F(North)
----------	---	--	----------	--	----------	----------	----------

Case 2(a):

F(North)	G(South)	D(South)	(North)	C(North)	A(South)		B(North)
----------	----------	----------	---------	----------	----------	--	----------

Case 2(b):

F(North)	G(South)	D(South)	(North)	C(North)	(South)	A	B(North)
----------	----------	----------	---------	----------	---------	---	----------

Clues: E faces south and sits at least two places away from C. E is not immediate left of B.

Inference: So, case 1(b) and 2(b) would be rejected. Also, case 2(a) is rejected as E is not immediate left of B. As, number of persons facing north is more than that of persons facing south. So, H must face north.

B(North)	E(South)	A(North)	C(South)	H(North)	D(North)	G(South)	F(North)
----------	----------	----------	----------	----------	----------	----------	----------

Two persons sit between H and F.

Hence, option c.

33) Who sits third to the right of B?

- a) A
- b) D
- c) G
- d) C

Correct Choice: d

Solution

Starting point: Here, we can start directly by C and D such that either of them face south or north.

Clues: C and D sit second to the left of each other. B sits third to the right of C. One person sits between D and F.

Inference: So, B and F must be at the extreme end.

Case 1: When C faces south.

B(North)			C(South)		D(North)		F(North)
----------	--	--	----------	--	----------	--	----------

Case 2: When C faces north.

F(North)		D(South)		C(North)			B(North)
----------	--	----------	--	----------	--	--	----------

Clues: At least three persons sit between A and G, who faces south. A is not adjacent to F.

Case 1(a):

B(North)		A	C(South)		D(North)	G(South)	F(North)
----------	--	---	----------	--	----------	----------	----------

Case 1(b):

B(North)	A		C(South)		D(North)	G(South)	F(North)
----------	---	--	----------	--	----------	----------	----------

Case 2(a):

F(Nort h)	G(Sout h)	D(Sout h)	(Nort h)	C(Nort h)	A(Sout h)		B(Nort h)
--------------	--------------	--------------	-------------	--------------	--------------	--	--------------

Case 2(b):

F(Nort h)	G(Sout h)	D(Sout h)	(Nort h)	C(Nort h)	(Sout h)	A	B(Nort h)
--------------	--------------	--------------	-------------	--------------	-------------	---	--------------

Clues: E faces south and sits at least two places away from C. E is not immediate left of B.

Inference: So, case 1(b) and 2(b) would be rejected. Also, case 2(a) is rejected as E is not immediate left of B. As, number of persons facing north is more than that of persons facing south. So, H must face north.

B(Nor th)	E(So uth)	A(Nor th)	C(Sou th)	H(Nor th)	D(Nor th)	G(Sou th)	F(Nor th)
--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------

C sits third to the right of B.

Hence, option d.

34) Who sits exactly between E and D?

- a) G
- b) C
- c) F
- d) B

Correct Choice: b

Solution

Starting point: Here, we can start directly by C and D such that either of them face south or north.

Clues: C and D sit second to the left of each other. B sits third to the right of C. One person sits between D and F.

Inference: So, B and F must be at the extreme end.

Case 1: When C faces south.

B(North)			C(South)		D(North)		F(North)
----------	--	--	----------	--	----------	--	----------

Case 2: When C faces north.

F(North)		D(South)		C(North)			B(North)
----------	--	----------	--	----------	--	--	----------

Clues: At least three persons sit between A and G, who faces south. A is not adjacent to F.

Case 1(a):

B(North)		A	C(South)		D(North)	G(South)	F(North)
----------	--	---	----------	--	----------	----------	----------

Case 1(b):

B(North)	A		C(South)		D(North)	G(South)	F(North)
----------	---	--	----------	--	----------	----------	----------

Case 2(a):

F(North)	G(South)	D(South)	(North)	C(North)	A(South)		B(North)
----------	----------	----------	---------	----------	----------	--	----------

Case 2(b):

F(North)	G(South)	D(South)	(North)	C(North)	(South)	A	B(North)
----------	----------	----------	---------	----------	---------	---	----------

Clues: E faces south and sits at least two places away from C. E is not immediate left of B.

Inference: So, case 1(b) and 2(b) would be rejected. Also, case 2(a) is rejected as E is not immediate left of B. As, number of persons facing north is more than that of persons facing south. So, H must face north.

B(North)	E(South)	A(North)	C(South)	H(North)	D(North)	G(South)	F(North)
----------	----------	----------	----------	----------	----------	----------	----------

C sits exactly between E and D.

Hence, option b.

Topic – Alphabet Test

35) Which of the following letter will be 10th letter from the left end if the letters at even positions are replaced by succeeding letter in the word “LIMITEDITION” such that from left end “L” is at odd position and “I” is at even position and so on?

- a) F
- b) T
- c) O
- d) J

Correct Choice: d

Solution

If we replace the even positioned letters with their respective succeeding letter then we would get the following word “LJMJTFDFDJTJOO”.

So, the letter, which is 10th from the left end is ‘J’.

Hence, option d.

Topic – Uncertain Circular Sitting Arrangement

(36-40) Directions: Answer the questions based on the information given below.

Certain number of persons are sitting around the circular table. All of them are facing towards the center. Q sits third to the right of M. One person sits between R and M. Three persons sit between N and P. O sits adjacent to R. M sits exactly between N and Q. N sits second to the left of O. One person sits between P and Q. At least three persons sit between R and P.

36) Who sits second to the left of P?

- a) N
- b) O
- c) M
- d) Q

Correct Choice: d

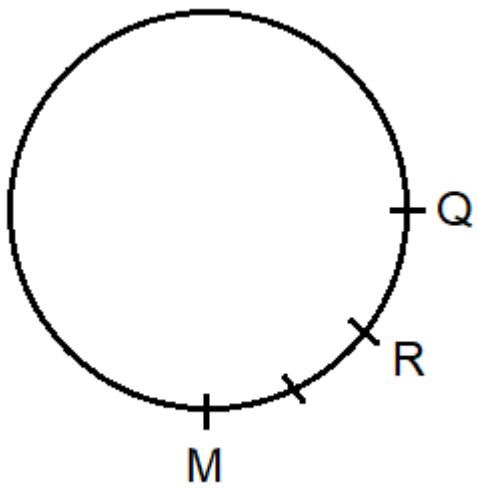
Solution

Starting point: Here, we can start with M in order to make initial two cases.

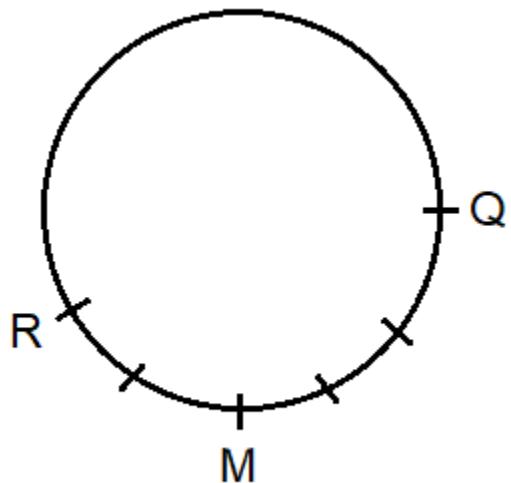
Clues: Q sits third to the right of M. One person sits between R and M.

Inference: So, R sits second to the right of M or second to the left of M.

Case 1:

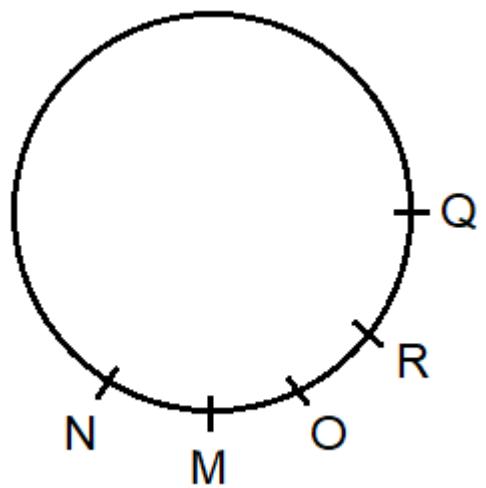


Case 2:

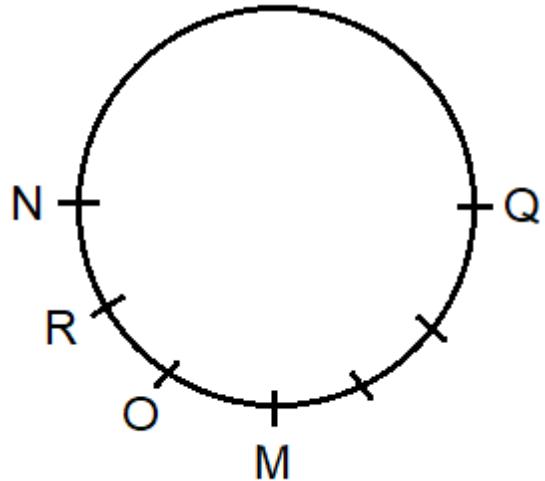


Clues: O sits adjacent to R. N sits second to the left of O.

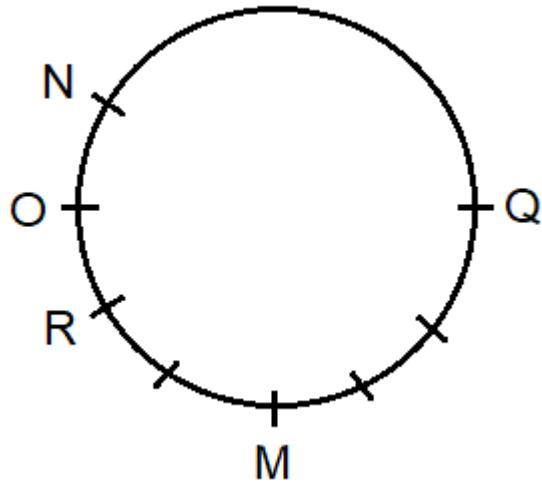
Case 1:



Case 2(a):

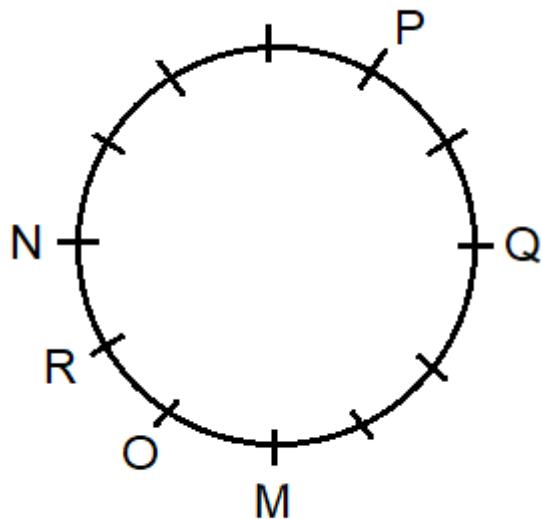


Case 2(b):



Clues: One person sits between P and Q. At least three persons sit between R and P. Three persons sit between N and P. M sits exactly between N and Q.

Inference: So, case 1 is rejected as number of persons between P and R are at least three. Case 2(b) are rejected as M sits exactly between N and Q.



Q sits second to the left of P.

Hence, option d.

37) How many persons sit in the circular arrangement?

- a) 13
- b) 12
- c) 10
- d) 11

Correct Choice: b

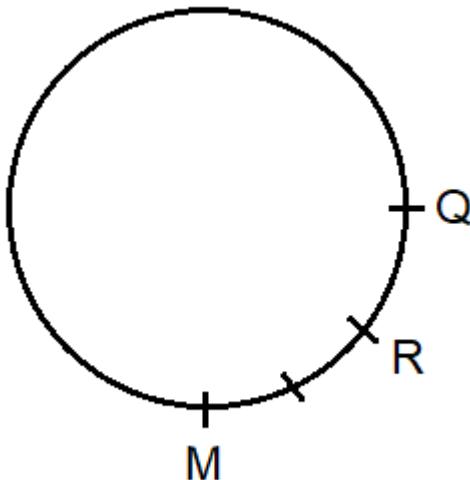
Solution

Starting point: Here, we can start with M in order to make initial two cases.

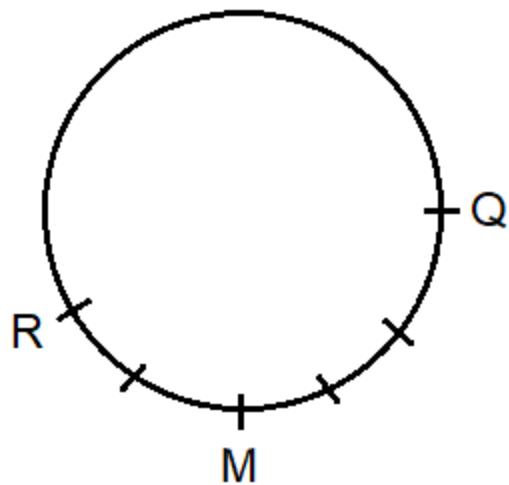
Clues: Q sits third to the right of M. One person sits between R and M.

Inference: So, R sits second to the right of M or second to the left of M.

Case 1:

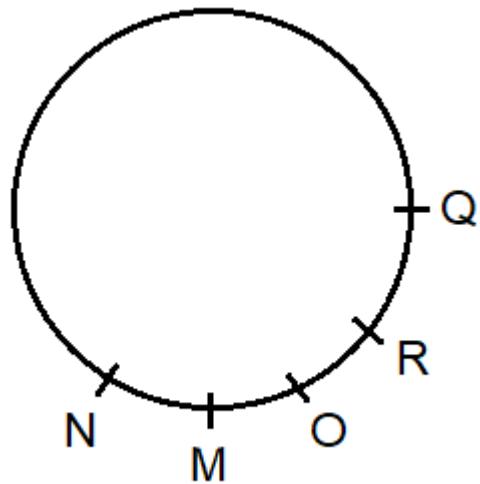


Case 2:

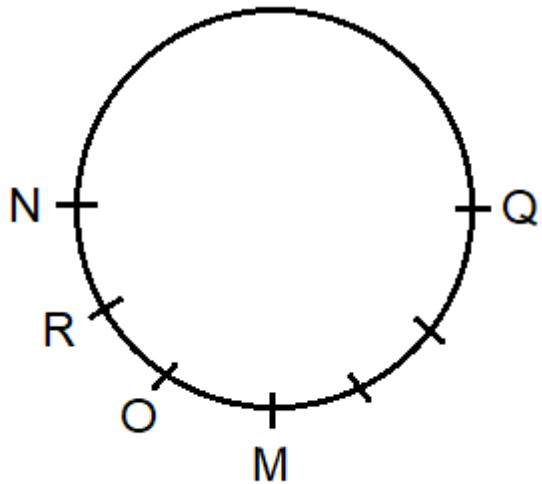


Clues: O sits adjacent to R. N sits second to the left of O.

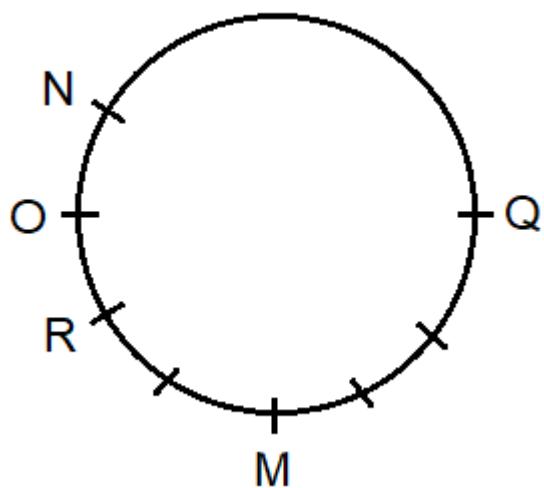
Case 1:



Case 2(a):

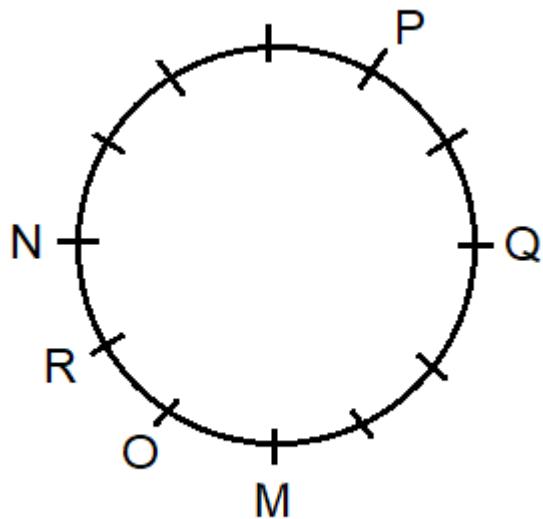


Case 2(b):



Clues: One person sits between P and Q. At least three persons sit between R and P. Three persons sit between N and P. M sits exactly between N and Q.

Inference: So, case 1 is rejected as number of persons between P and R are at least three. Case 2(b) are rejected as M sits exactly between N and Q.



12 persons sit in the circular arrangement.

Hence, option b

38) ___ sits immediate left of R.

- a) N
- b) O
- c) M
- d) Q

Correct Choice: a

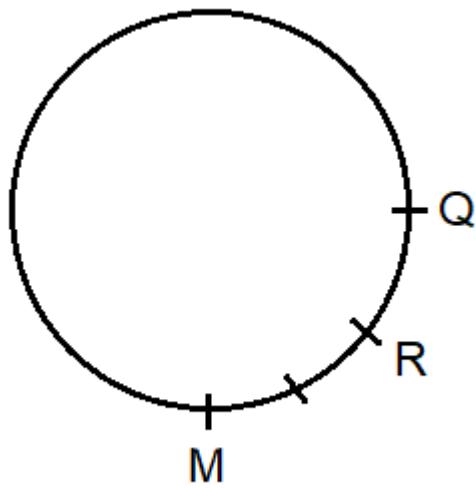
Solution

Starting point: Here, we can start with M in order to make initial two cases.

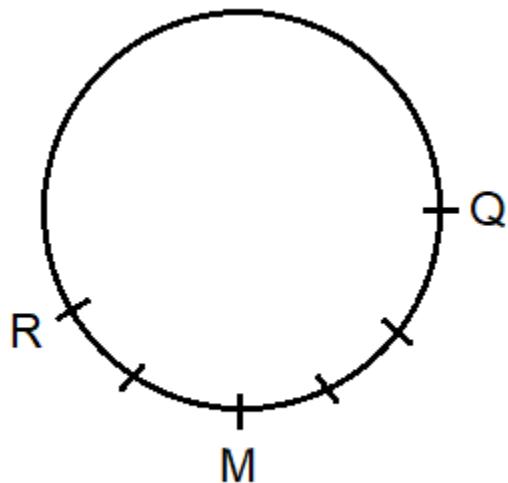
Clues: Q sits third to the right of M. One person sits between R and M.

Inference: So, R sits second to the right of M or second to the left of M.

Case 1:

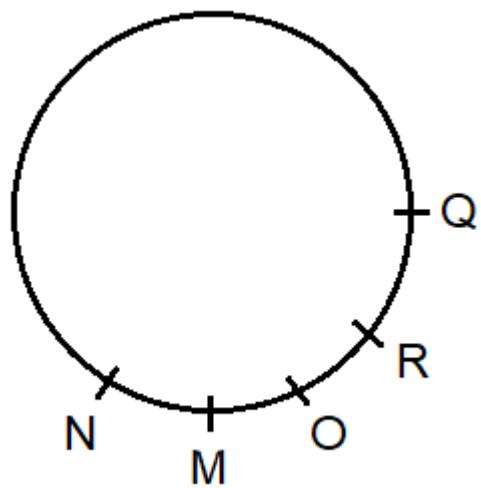


Case 2:

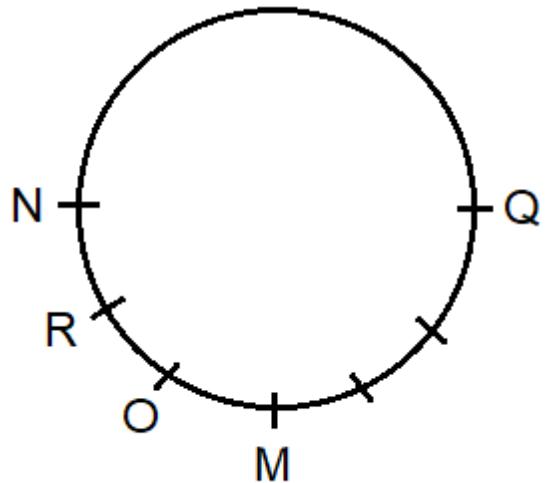


Clues: O sits adjacent to R. N sits second to the left of O.

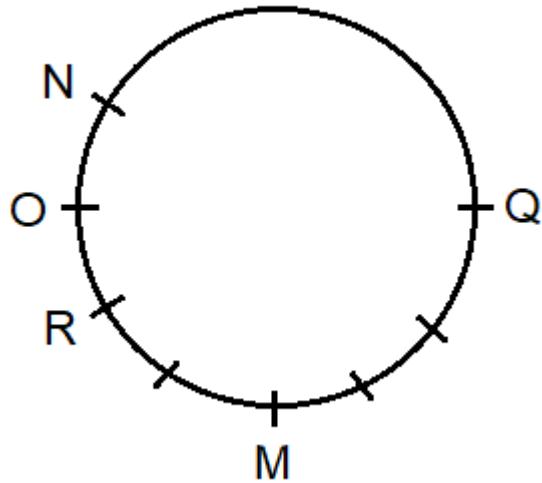
Case 1:



Case 2(a):

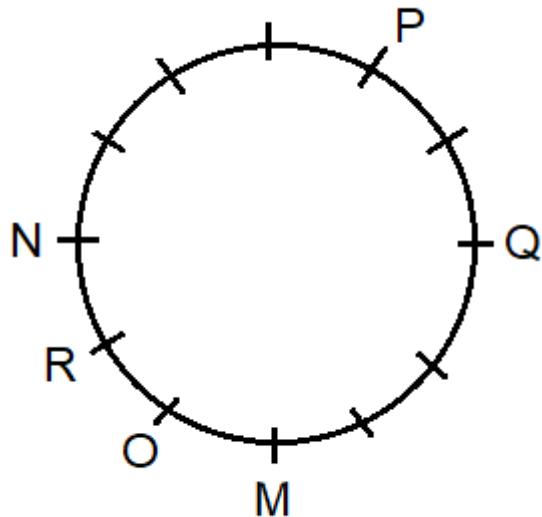


Case 2(b):



Clues: One person sits between P and Q. At least three persons sit between R and P. Three persons sit between N and P. M sits exactly between N and Q.

Inference: So, case 1 is rejected as number of persons between P and R are at least three. Case 2(b) are rejected as M sits exactly between N and Q.



N sits immediate left of R.

Hence, option a.

39) Who sits fourth to the left of N?

- a) O
- b) R
- c) M
- d) P

Correct Choice : d

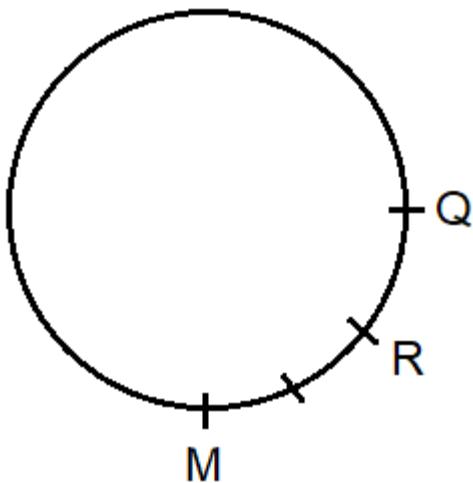
Solution

Starting point: Here, we can start with M in order to make initial two cases.

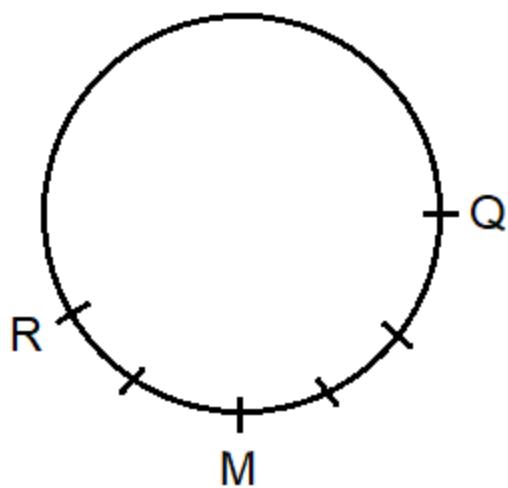
Clues: Q sits third to the right of M. One person sits between R and M.

Inference: So, R sits second to the right of M or second to the left of M.

Case 1:

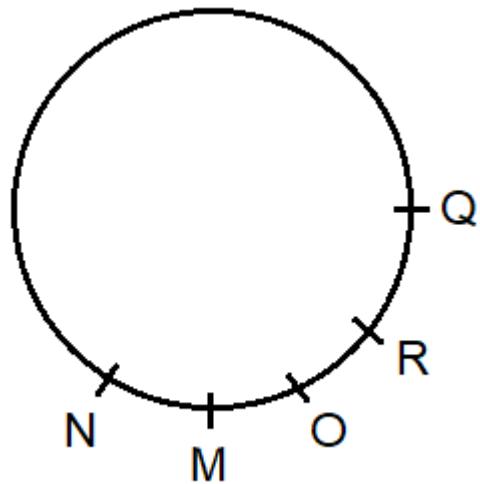


Case 2:

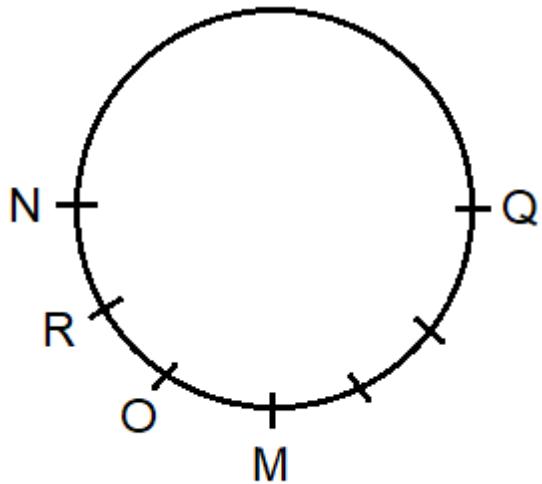


Clues: O sits adjacent to R. N sits second to the left of O.

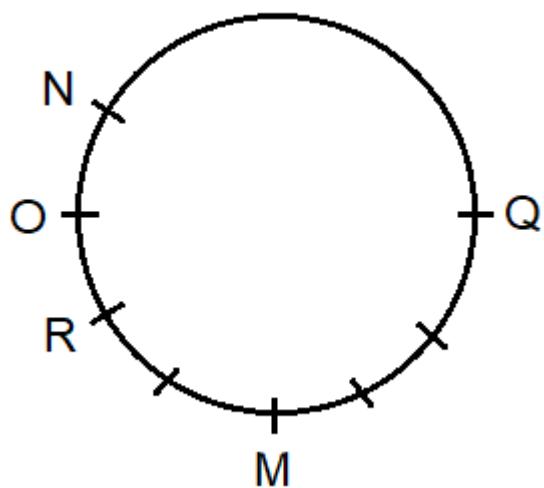
Case 1:



Case 2(a):

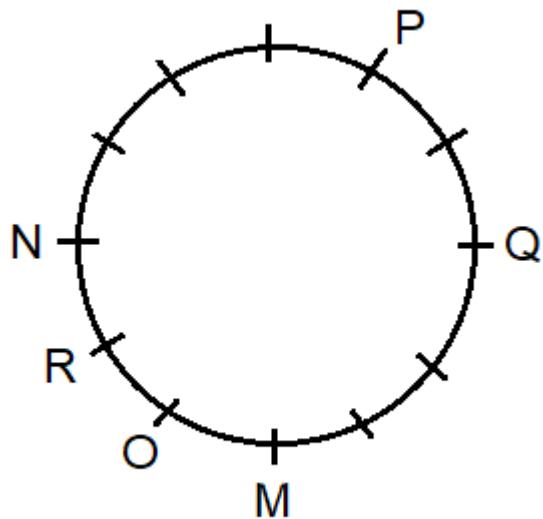


Case 2(b):



Clues: One person sits between P and Q. At least three persons sit between R and P. Three persons sit between N and P. M sits exactly between N and Q.

Inference: So, case 1 is rejected as number of persons between P and R are at least three. Case 2(b) are rejected as M sits exactly between N and Q.



P sits fourth to the left of N.

Hence, option d.

40) How many persons sit between O and Q when counted from the right of O?

- a) Three
- b) Four
- c) Two
- d) Five

Correct Choice : a

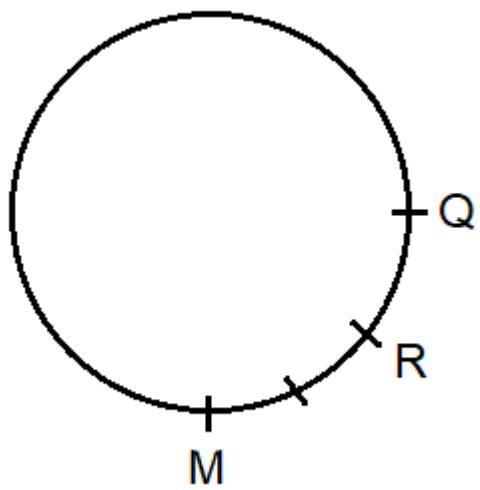
Solution

Starting point: Here, we can start with M in order to make initial two cases.

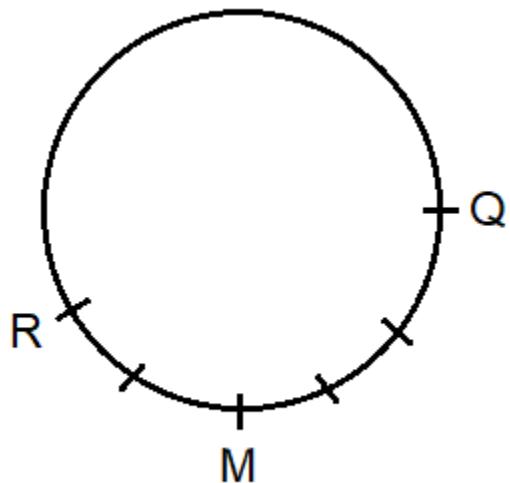
Clues: Q sits third to the right of M. One person sits between R and M.

Inference: So, R sits second to the right of M or second to the left of M.

Case 1:

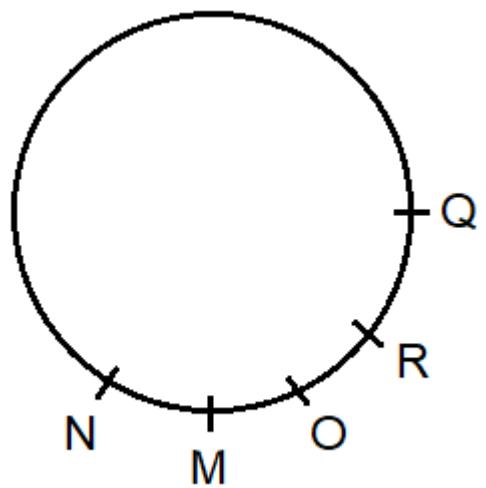


Case 2:

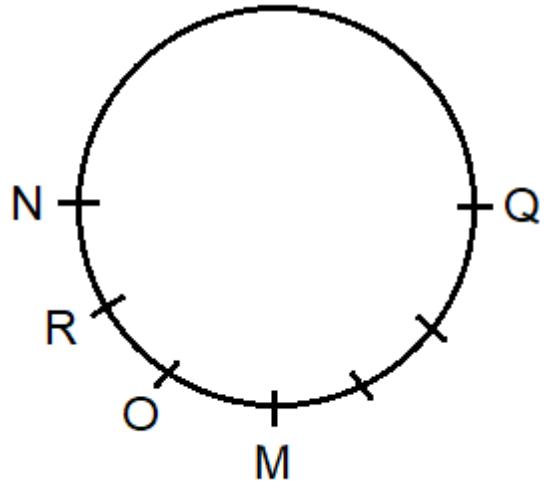


Clues: O sits adjacent to R. N sits second to the left of O.

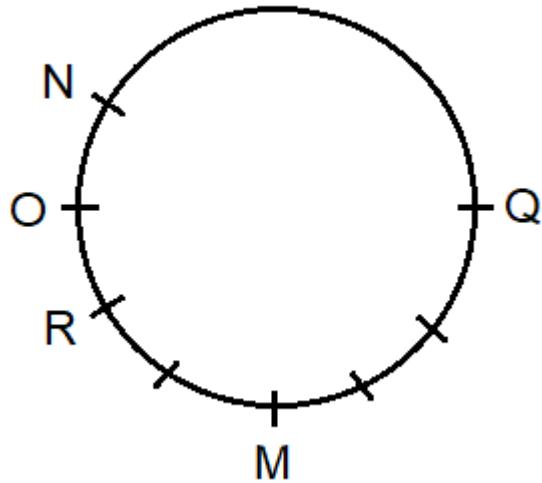
Case 1:



Case 2(a):

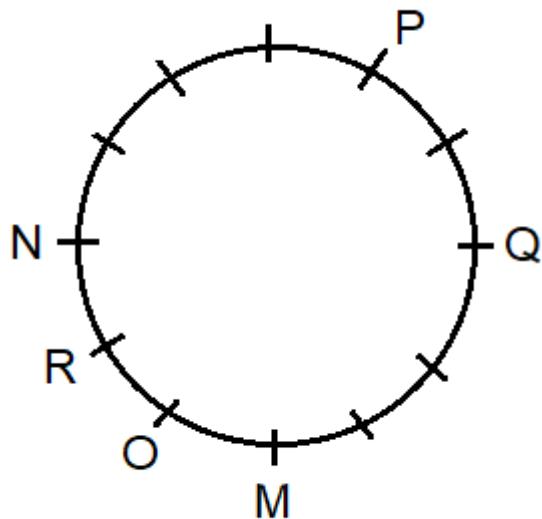


Case 2(b):



Clues: One person sits between P and Q. At least three persons sit between R and P. Three persons sit between N and P. M sits exactly between N and Q.

Inference: So, case 1 is rejected as number of persons between P and R are at least three. Case 2(b) are rejected as M sits exactly between N and Q.



Three persons sit between O and Q when counted from the right of O.
Hence, option a.

Topic – Logical Inequalities

(41-42) In the question, assuming the given statements to be true, find which of the conclusion (s) among given three conclusions is /are definitely true and then give your answer accordingly.

41)

Statements: $O > W \leq K$; $W > S \geq R$; $F \leq E \leq R$

Conclusions:

- I. $O > F$
- II. $E < K$
- III. $F \leq W$

- a) Only conclusion II is true.
- b) Both conclusions I and II are true.
- c) Only conclusion I is true.
- d) Both conclusions I and III are true.

Correct Choice: b

Solution

Given statements: $O > W \leq K$; $W > S \geq R$; $F \leq E \leq R$

On combining, we get

$$O > W > S \geq R \geq E \geq F; K \geq W > S \geq R \geq E \geq F$$

Conclusions:

- I. $O > F$: True (As $O > W > S \geq R \geq E \geq F$, so, $O > F$)
- II. $E < K$: True (As $K \geq W > S \geq R \geq E$, so $K > E$)

III. $F \leq W$: False (As $W > S \geq R \geq E \geq F$, so, $W > F$)

Hence, option b.

(41-42) In the question, assuming the given statements to be true, find which of the conclusion (s) among given three conclusions is /are definitely true and then give your answer accordingly.

42) Statements: $Y \geq E > S \geq P \geq O$; $D \leq M < P$; $D \leq L = I$

Conclusions:

- I. $Y > I$
- II. $E \geq D$
- III. $L > M$

- a) Only conclusion II is true.
- b) Only conclusion I is true.
- c) Only conclusion III is true.
- d) All conclusions I, II and III are false.

Correct Choice: d

Solution

Given statements: $Y \geq E > S \geq P \geq O$; $D \leq M < P$; $D \leq L = I$

On combining, we get

$$Y \geq E > S \geq P > M \geq D \leq L = I$$

Conclusions:

I. $Y > I$: False (As $Y \geq E > S \geq P > M \geq D \leq L = I$, the relation between Y and I cannot be determined)

II. $E \geq D$: False (As $E > S \geq P > M \geq D$, so $E > D$)

III. $L > M$: False (As $M \geq D \leq L$, the relation between L and M cannot be determined)

Hence, option d.

Topic – Ordering & Ranking

(43-44) Directions: Answer the questions based on the information given below.

Seven cars P, Q, R, S, T, U and V have different weights. Car Q is lighter than only V. Car T is heavier than car U and car S. Number of cars heavier and lighter than car R is equal. Car P is heavier than car U, which is not the lightest.

43) How many cars are heavier than car T?

- a) Three
- b) Two
- c) Four
- d) Cannot be determined

Correct Choice: d

Solution

Clues: Car Q is lighter than only V. Car T is heavier than car U and car S. Number of cars heavier and lighter than car R is equal. Car P is heavier than car U, which is not the lightest.

Inference: So, car V must be the heaviest. Also, car R must be the 4th heaviest as equal number of cars are heavier and lighter than car R. Since, car U is not the lightest. So, car S must be the lightest.

$$V > Q > P/T > R > T/P > U > S$$

Either two or four cars are heavier than car T.

Hence, option d.

44) Which of the following car is the lightest?

- a) Car U
- b) Car Q
- c) Car V
- d) Car S

Correct Choice: d

Solution

Clues: Car Q is lighter than only V. Car T is heavier than car U and car S. Number of cars heavier and lighter than car R is equal. Car P is heavier than car U, which is not the lightest.

Inference: So, car V must be the heaviest. Also, car R must be the 4th heaviest as equal number of cars are heavier and lighter than car R. Since, car U is not the lightest. So, car S must be the lightest.

$V > Q > P/T > R > T/P > U > S$

Car S is the lightest.

Hence, option d.

Topic – Conditions Based Puzzle

(45-46) Directions: Answer the questions based on the information given below.

Seven persons P, Q, R, S, T, U and V go for a trip to cities among Lucknow, Delhi, Mumbai, Pune, Patna and Chennai. Two persons go for a trip to same city. Each of them has different number of bags from 1 to 7.

Person, who goes to Delhi has 4 bags. T has one more bag than that of U. V goes to Patna and has 7 bags. Only S goes to Pune. P has 3 bags. Q has prime number of bags. Neither P nor Q goes to Chennai or Delhi. Persons, who go to the same city have even number of bags. R and T go to same city. No one goes to same city to which U goes. S does not have 4 bags. Person, who goes to Chennai, does not have 1 bag.

45) T goes to _____.

- a) Delhi
- b) Chennai
- c) Mumbai
- d) Pune

Correct Choice: a

Solution

Starting point: Here, we can start with the directly given information and then using the statement related to Q in order to make two cases.

Clues: V goes to Patna and has 7 bags. Only S goes to Pune. P has 3 bags. Q has prime number of bags. Neither P nor Q goes to Chennai or Delhi. Persons, who go to the same city have even number of bags. No one goes to same city to which U goes.

Inference: So, Q has either 2 or 5 bags.

Case 1:

Persons	Cities	Number of bags
P		3
Q		2
R		
S	Pune	
T		
U		
V	Patna	7

Case 2:

Persons	Cities	Number of bags
P		3
Q		5
R		
S	Pune	
T		
U		
V	Patna	7

Clues: T has one bag more than that of U. S does not have 4 bags.

Case 1:

Persons	Cities	Number of bags
P		3
Q		2
R		4
S	Pune	1
T		6
U		5
V	Patna	7

Case 2:

Persons	Cities	Number of bags
P		3
Q		5
R		4
S	Pune	6
T		2
U		1
V	Patna	7

Clues: Person, who goes to Delhi has 4 bags. Person, who goes to Chennai, does not have 1 bag.

Inference: So, case 2 is rejected as person, who goes to Chennai does not have 1 bag.

Persons	Cities	Number of bags
P	Lucknow/Mumbai	3
Q	Mumbai/Lucknow	2
R	Delhi	4
S	Pune	1
T	Delhi	6
U	Chennai	5
V	Patna	7

So, T goes to Delhi.

Hence, option a.

46) What is the sum of number of bags of R and P?

- a) 6
- b) 7
- c) 2
- d) 3

Correct Choice: b

Solution

Starting point: Here, we can start with the directly given information and then using the statement related to Q in order to make two cases.

Clues: V goes to Patna and has 7 bags. Only S goes to Pune. P has 3 bags. Q has prime number of bags. Neither P nor Q goes to Chennai or Delhi. Persons, who go to the same city have even number of bags. No one goes to same city to which U goes.

Inference: So, Q has either 2 or 5 bags.

Case 1:

Persons	Cities	Number of bags
P		3
Q		2
R		
S	Pune	
T		
U		
V	Patna	7

Case 2:

Persons	Cities	Number of bags
P		3
Q		5
R		
S	Pune	
T		

U		
V	Patna	7

Clues: T has one bag more than that of U. S does not have 4 bags.

Case 1:

Persons	Cities	Number of bags
P		3
Q		2
R		4
S	Pune	1
T		6
U		5
V	Patna	7

Case 2:

Persons	Cities	Number of bags
P		3
Q		5
R		4
S	Pune	6
T		2

U		1
V	Patna	7

Clues: Person, who goes to Delhi has 4 bags. Person, who goes to Chennai, does not have 1 bag.

Inference: So, case 2 is rejected as person, who goes to Chennai does not have 1 bag.

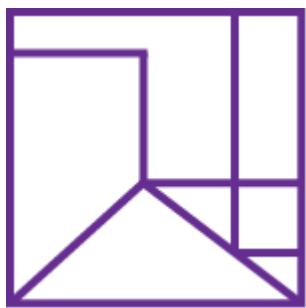
Persons	Cities	Number of bags
P	Lucknow/Mumbai	3
Q	Mumbai/Lucknow	2
R	Delhi	4
S	Pune	1
T	Delhi	6
U	Chennai	5
V	Patna	7

The sum of number of bags of R and P = $4 + 3 = 7$.

Hence, option b.

Topic – Counting the Number of Figures

47) How many triangles are there in the following figure?



- a) 2
- b) 3
- c) 4
- d) More than 4

Correct Choice : c

Solution

There are 4 triangles present in the figure.

Hence, option c.

Topic – Coding – Decoding (Direct Letter Coding)

48) In a code language, PRIVACY is written as IRPCAYV. How would FOUNDER be written in the same code?

- a) UOFEDRN
- b) UOFERDN
- c) UOEFDNR
- d) UOFEDNR

Correct Choice : a

Solution

First three letters of the word are written in reverse order followed by the second last letter of the word. Fifth letter (from the left end) is not unchanged. Last letter becomes the second last letter and fourth letter becomes the last letter, so FOUNDER is written as UOFEDRN.

Hence, option a.

Topic – Letter Series

49) A letter series is given below in which some letters are missing. Select the option that gives the letters that can fill these blanks in that order.

cd_efgg_cd_efg_h_dde_ggh

- a) Dhdgef
- b) Dhegcf
- c) Dhdgcf
- d) Dhdgce

Correct Choice : c

Solution

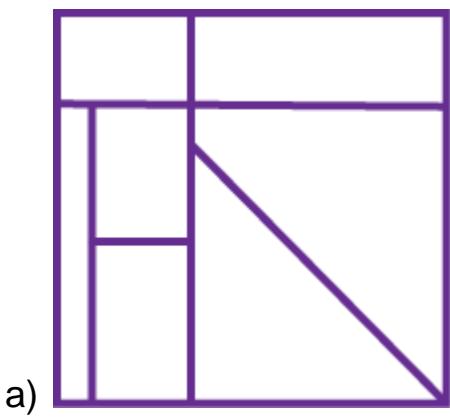
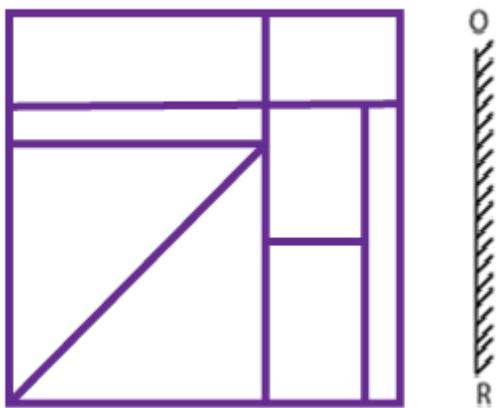
From option (c),

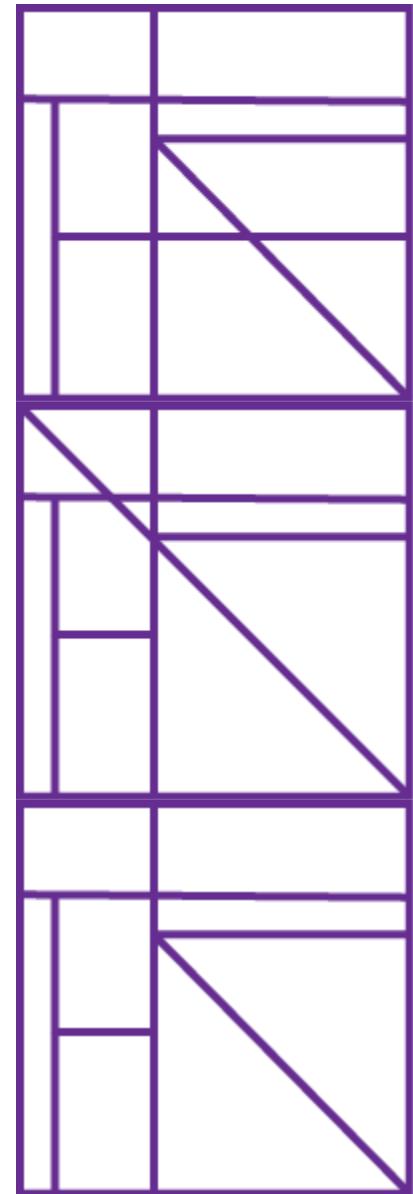
c d d e f g g h/c d d e f g g h/c d d e f g g h

Hence, option c.

Topic – Mirror Image

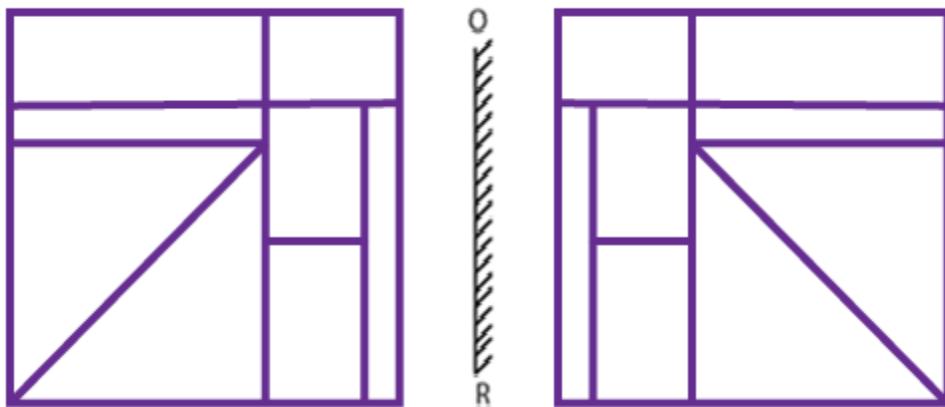
50) If a mirror is placed on the line OR, then which of the answer figures is the right image of the given figure?





Correct Choice: d

Solution



Hence, option d.

Topic – Matrix Coding - Decoding

51) In the question, a word is represented by only one set of number as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by 2 classes of alphabets as in two matrices given below. The columns and rows of matrix I are numbers from 0-4 and that of matrix II are numbers from 5-9. A letter from this matrix can be represented 1st by its row and next by its column. Ex- 'A' can be represented by 30 etc. and 'B' can be represented by 23, 43, 57 etc. Similarly, you have to identify the set of word 'POVERTY'.

Matrix - I

	0	1	2	3	4
0	U	J	G	D	E
1	M	C	H	J	K
2	T	O	P	B	X
3	A	N	V	X	Z
4	H	Y	R	B	C

Matrix - II

	5	6	7	8	9
5	U	K	B	C	D
6	K	P	C	X	W
7	M	B	H	F	R
8	S	Y	E	F	V
9	I	A	K	Y	R

- a) 22, 12, 23, 04, 79, 20, 41
- b) 66, 21, 32, 87, 24, 02, 98
- c) 66, 21, 32, 87, 42, 20, 98
- d) 66, 21, 32, 78, 42, 20, 98

Correct Choice: c

Solution

As the digits of the numbers represented by columns and rows respectively,

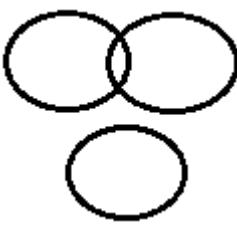
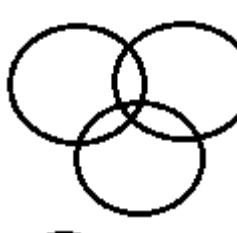
P	O	V	E	R	T	Y
22, 66	21	32, 89	04, 87	42, 79, 99	20	41, 98, 86

Hence, option c.

Topic – Logical Venn Diagram type -1

52) Select the Venn diagram that best illustrates the relationship between the following classes:

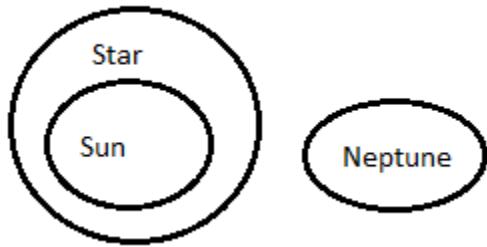
Neptune, Sun, Stars

- a) 
- b) 
- c) 
- d) 

Correct Choice: b

Solution

Following Venn diagram represents the relation between Neptune, Sun and Stars



Hence, option b.

Topic – Completing the Analogous pair

53) Select the option that is related fifth term in the same way as the second term is related to the first term and the fourth term is related to the third term:

$$9643 : 11 :: 3278 : 10 :: 8976 : ?$$

- a) 17
- b) 14
- c) 15
- d) 13

Correct Choice: c

Solution

Second term is half the sum of all the digits of first term.

$$\text{i.e. Second term} = \frac{1}{2} \times (9 + 6 + 4 + 3) = \frac{1}{2} \times 22 = 11.$$

Fourth term is twice the sum of all the digits of third term.

$$\text{i.e. Fourth term} = \frac{1}{2} \times (3 + 2 + 7 + 8) = \frac{1}{2} \times 20 = 10.$$

Sixth term is twice the sum of all the digits of fifth term, so

$$\text{Sixth term} = \frac{1}{2} \times (8 + 9 + 7 + 6) = \frac{1}{2} \times 30 = 15.$$

Hence, option c.

Topic – Syllogisms

54) Three statements are given followed by three conclusions numbered I, II, and III assuming the statements to be true, even if they seem to be at variance with commonly known facts. Decide which of conclusion logically follow(s) from the statement.

Statements:

No planets are stars.

All stars are satellites.

No satellites are mars.

Conclusions:

I. No planets are satellites.

II. Some stars are mars.

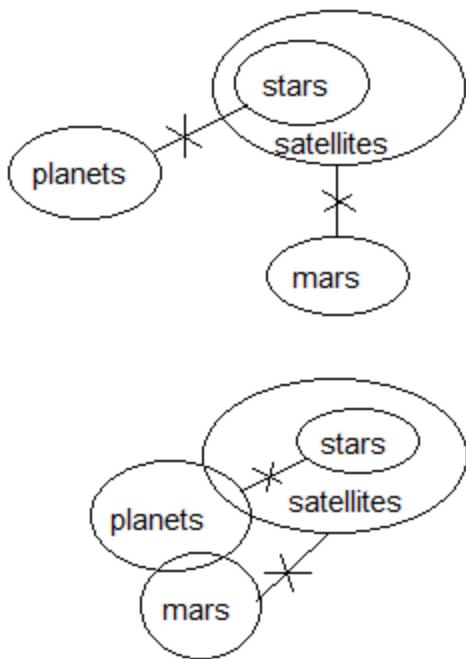
III. Some mars being planets is a possibility.

- a) Only conclusion I follows
- b) Only conclusion III follows
- c) Conclusion I and conclusion III follow
- d) Conclusion II and conclusion III follow

Correct Choice:b

Solution

Following figure can be formed from the statements:



Only conclusion III follows.

Hence, option b.

Numerical Ability

Topic – Caselet on Ratios & proportions

(55-59) Directions: Answer the questions based on the information given below.

In a restaurant, different numbers of orders are placed through Zomato and Swiggy. Average of number of orders placed through Zomato on Monday, Tuesday and Wednesday together is 375. Ratio of number of orders placed through Zomato on Monday and Tuesday is 9:7, respectively. Number of orders placed through Swiggy on Tuesday is 60% of total number orders placed on Tuesday. Number of orders placed through Swiggy on Tuesday is 525. Total number of orders placed on Wednesday is 20% less than the same on Tuesday. Ratio of number of orders placed through Swiggy on Monday and Wednesday is 6:5, respectively.

55) What is the ratio of number of orders placed through Zomato and Swiggy respectively on Wednesday?

- a) 13:25
- b) 11:15
- c) 13:15
- d) 13:11

Correct Choice: c

Solution

Total number of orders placed on Tuesday = $525/0.60 = 875$

Number of orders placed through Zomato = $875 - 525 = 350$

Number of orders placed through Zomato on Monday = $9/7 \times 350 = 450$

Total number of orders placed on Wednesday = $0.80 \times 875 = 700$

Number of orders placed through Zomato on Wednesday = $375 \times 3 - 350 - 450 = 325$

Number of orders placed through Swiggy on Wednesday = $700 - 325 = 375$

Number of orders placed through Swiggy on Monday = $6/5 \times 375 = 450$

Total number of orders placed on Monday = $450 + 450 = 900$

Days	Number of orders placed through Zomato	Number of orders placed through Swiggy	Total number of orders placed
Monday	450	450	900

Tuesday	350	525	875
Wednesday	325	375	700

Desired ratio = 325:375 = 13:15

Hence, option c.

56) Total number of orders placed on Thursday is 12% more than the same on Monday and ratio of number of orders placed through Swiggy on Tuesday and Thursday is 7:8, respectively. Number of orders placed through Zomato on Thursday is:

- a) 408
- b) 398
- c) 418
- d) 428

Correct Choice:a

Solution

Total number of orders placed on Tuesday = $525/0.60 = 875$

Number of orders placed through Zomato = $875 - 525 = 350$

Number of orders placed through Zomato on Monday = $9/7 \times 350 = 450$

Total number of orders placed on Wednesday = $0.80 \times 875 = 700$

Number of orders placed through Zomato on Wednesday = $375 \times 3 - 350 = 450$

Number of orders placed through Swiggy on Wednesday = $700 - 325 = 375$

Number of orders placed through Swiggy on Monday = $6/5 \times 375 = 450$

Total number of orders placed on Monday = $450 + 450 = 900$

Days	Number of orders placed through Zomato	Number of orders placed through Swiggy	Total number of orders placed

Monday	450	450	900
Tuesday	350	525	875
Wednesday	325	375	700

Total number of orders placed on Thursday = $1.12 \times 900 = 1008$

Number of orders placed through Swiggy on Thursday = $8/7 \times 525 = 600$

Number of orders placed through Zomato on Thursday = $1008 - 600 = 408$

Hence, option a.

57) Number of orders placed through Swiggy on Tuesday is how much percent more/less than the same on Monday?

- a) 26.67%
- b) 16.67%
- c) 13.33%
- d) 15.55%

Correct Choice: b

Solution

Total number of orders placed on Tuesday = $525/0.60 = 875$

Number of orders placed through Zomato = $875 - 525 = 350$

Number of orders placed through Zomato on Monday = $9/7 \times 350 = 450$

Total number of orders placed on Wednesday = $0.80 \times 875 = 700$

Number of orders placed through Zomato on Wednesday = $375 \times 3 - 350 = 450 = 325$

Number of orders placed through Swiggy on Wednesday = $700 - 325 = 375$

Number of orders placed through Swiggy on Monday = $6/5 \times 375 = 450$

Total number of orders placed on Monday = $450 + 450 = 900$

Days	Number of orders placed through Zomato	Number of orders placed through Swiggy	Total number of orders placed
Monday	450	450	900
Tuesday	350	525	875
Wednesday	325	375	700

$$\text{Desired percentage} = [(525 - 450)/450] \times 100 = 16.67\%$$

Hence, option b.

58) If the delivery agent from Zomato and Swiggy charged Rs. 12 per order and Rs. 16 per order, respectively then find total amount paid by the restaurant on Tuesday if all the orders are delivered through a delivery agent.

- a) Rs. 12800
- b) Rs. 12400
- c) Rs. 12600
- d) Rs. 12200

Correct Choice: c

Solution

$$\text{Total number of orders placed on Tuesday} = 525/0.60 = 875$$

$$\text{Number of orders placed through Zomato} = 875 - 525 = 350$$

$$\text{Number of orders placed through Zomato on Monday} = 9/7 \times 350 = 450$$

$$\text{Total number of orders placed on Wednesday} = 0.80 \times 875 = 700$$

$$\text{Number of orders placed through Zomato on Wednesday} = 375 \times 3 - 350 - 450 = 325$$

Number of orders placed through Swiggy on Wednesday = $700 - 325 = 375$

Number of orders placed through Swiggy on Monday = $6/5 \times 375 = 450$

Total number of orders placed on Monday = $450 + 450 = 900$

Days	Number of orders placed through Zomato	Number of orders placed through Swiggy	Total number of orders placed
Monday	450	450	900
Tuesday	350	525	875
Wednesday	325	375	700

Desire Amount paid = $350 \times 12 + 525 \times 16 = \text{Rs. } 12600$

Hence, option c.

59) What is the number of orders placed through Zomato on Monday?

- a) 450
- b) 432
- c) 360
- d) 540

Correct Choice:a

Solution

Total number of orders placed on Tuesday = $525/0.60 = 875$

Number of orders placed through Zomato = $875 - 525 = 350$

Number of orders placed through Zomato on Monday = $9/7 \times 350 = 450$

Total number of orders placed on Wednesday = $0.80 \times 875 = 700$

Number of orders placed through Zomato on Wednesday = $375 \times 3 - 350 - 450 = 325$

Number of orders placed through Swiggy on Wednesday = $700 - 325 = 375$

Number of orders placed through Swiggy on Monday = $6/5 \times 375 = 450$

Total number of orders placed on Monday = $450 + 450 = 900$

Days	Number of orders placed through Zomato	Number of orders placed through Swiggy	Total number of orders placed
Monday	450	450	900
Tuesday	350	525	875
Wednesday	325	375	700

Number of orders placed through Zomato on Monday = 450

Hence, option a.

Topic – Mixtures & Allegations

60) 448 ml of mixture A containing milk and water in the ratio of 9:5, respectively is mixed with ‘x’ ml of mixture B containing milk and water in the ratio of 11:10, respectively. If the ratio of milk to water in the final mixture is 3:2, then find the value of x.

- a) 252
- b) 210
- c) 336
- d) 294

Correct Choice: a

Solution

Quantity of milk in mixture A = $9/14 \times 448 = 288$ ml

Quantity of water in mixture A = $448 - 288 = 160$ ml

Let amount of milk and water in mixture B is 11y and 10y respectively.

So, $(288 + 11y)/(160 + 10y) = 3/2$

Or, $576 + 22y = 480 + 30y$

Or, $8y = 96$

Or, $y = 12$

So, $x = 21y = 21 \times 12 = 252$

Hence, option a.

Topic – Time & work

61) A and B together can complete 75% of a work in 33 days while A, B and C together can complete the whole work in 26 days. If 'C' is 12.5% more efficient than B then find the time taken by A and C together to complete 70% of the work.

- a) 29.2 days
- b) 28.4 days
- c) 27.8 days
- d) None of these

Correct Choice: d

Solution

Total time taken by A and B together to complete the whole work = $33/0.75$
= 44 days

Let total amount of work = 572 units (LCM of 44 and 26)

Efficiency of $(A + B) = 572/44 = 13$ units per day

Efficiency of $(A + B + C) = 572/26 = 22$ units per day

Efficiency of $C = 22 - 13 = 9$ units per day

Efficiency of $B = 9/1.125 = 8$ units per day

Efficiency of $A = 13 - 8 = 5$ units per day

Desired Time = $(0.70 \times 572)/14 = 28.6$ days

Hence, option d.

Topic – Compound Interest

62) A certain sum of money at a certain rate of compound interest compounded annually becomes Rs. 12500 after 2 years and Rs. 19531.25 after 4 years. Find the rate of compound interest.

- a) 20%
- b) 15%
- c) 17.5%
- d) 25%

Correct Choice: d

Solution

Let the principal amount is Rs. P and the rate of compound interest is R% p.a.

$$\text{So, } P(1 + R/100)^2 = 12500 \dots \dots \dots (1)$$

$$\text{And, } P(1 + R/100)^4 = 19531.25 \dots \dots \dots (2)$$

On dividing equation (2) by equation (1), we get

$$(1 + R/100)^2 = 19531.25/12500 = 1.5625$$

$$\text{Or, } (1 + R/100) = 1.25$$

$$\text{Or, } R/100 = 0.25$$

$$\text{Or, } R = 25\%$$

Hence, option d.

Topic – Boats & streams

63) Ratio of speed of a boat in still water to speed of stream is 9:2. The boat travels a distance of $(D + 40)$ km in downstream and D km in upstream. If the ratio of time taken by the boat to travel in upstream and in downstream is 4:3, respectively then find the value of D .

- a) 220
- b) 240
- c) 212
- d) 224

Correct Choice: d

Solution

Let speed of boat in still water and speed of stream is $9x$ km/h and $2x$ km/h respectively.

So, Upstream speed = $9x - 2x = 7x$ km/h

And, downstream speed = $9x + 2x = 11x$ km/h

According to question;

$$\{D/7x\}/\{(D + 40)/11x\} = 4/3$$

$$\text{Or, } 33D = 28D + 1120$$

$$\text{Or, } 5D = 1120$$

$$\text{Or, } D = 224$$

Hence, option d.

Topic – Partnership

64) A and B entered into a business with an initial investment of Rs. 1800 and Rs. 1500 respectively. After 7 months, A added Rs. 680 more while B withdrew Rs. 600 and C entered into the business investing Rs. 80x. At the end of year profit share of C, out of total profit of Rs. 7200 is Rs. 2400. Find the value of x.

- a) 60
- b) 50
- c) 40
- d) 80

Correct Choice: b

Solution

Ratio of profit share of A, B and C = $\{1800 \times 7 + 2480 \times 5\}:\{1500 \times 7 + 900 \times 5\}:\{80x \times 5\} = 25000:15000:400x = 125:75:2x$

According to question;

$$2x/(125 + 75 + 2x) = 2400/7200 = 1/3$$

$$\text{Or, } 6x = 200 + 2x$$

$$\text{Or, } 4x = 200$$

$$\text{Or, } x = 50$$

Hence, option b.

Topic – Discounts

65) Gunja marked an article 50% above the cost price and sold it after giving a discount of 20%. Had she bought the article for Rs. 150 less and sold it for Rs. 240 more then she would have made a profit of 60%. New selling price is how much percent more than original selling price.

- a) 20%
- b) 25%
- c) 15%
- d) None of these

Correct Choice: d

Solution

Let cost price of the article is Rs. x

Marked price of the article = $1.50 \times x = \text{Rs. } 1.5x$

Selling price of the article = $0.80 \times 1.5x = \text{Rs. } 1.2x$

According to question;

$$1.60 \times (x - 150) = 1.2x + 240$$

$$1.6x - 240 = 1.2x + 240$$

$$\text{Or, } 0.4x = 480$$

$$\text{Or, } x = 1200$$

$$\text{Original selling price} = 1.2 \times 1200 = \text{Rs. } 1440$$

$$\text{Desired percentage} = 240/1440 \times 100 = 16.67\%$$

Hence, option d.

Topic – Problems on Ages

66) Ratio of ages of A and B, 8 years ago was 5:4 respectively. If present average age of B and C is 38 years and age of C after 24 years will be 20% more than age of A after 2 years. Find the ratio of present age of B to present age of C.

- a) 9:10
- b) 10:9
- c) 9:8
- d) 8:9

Correct Choice: b

Solution

Let age of A and B, 8 years ago was $5x$ years and $4x$ years respectively.

Present age of C = 'y' years

$$\text{So, } 4x + 8 + y = 38 \times 2 = 76$$

$$\text{Or, } 4x + y = 68$$

$$\text{And, } y + 24 = 1.20 \times (5x + 8 + 2)$$

$$\text{Or, } y + 24 = 6x + 12$$

$$\text{Or, } 68 - 4x + 24 = 6x + 12$$

$$\text{Or, } 10x = 80$$

$$\text{Or, } x = 8$$

$$\text{So, present age of B} = 8 \times 4 + 8 = 40 \text{ years}$$

$$\text{Present age of C} = 68 - 4 \times 8 = 36 \text{ years}$$

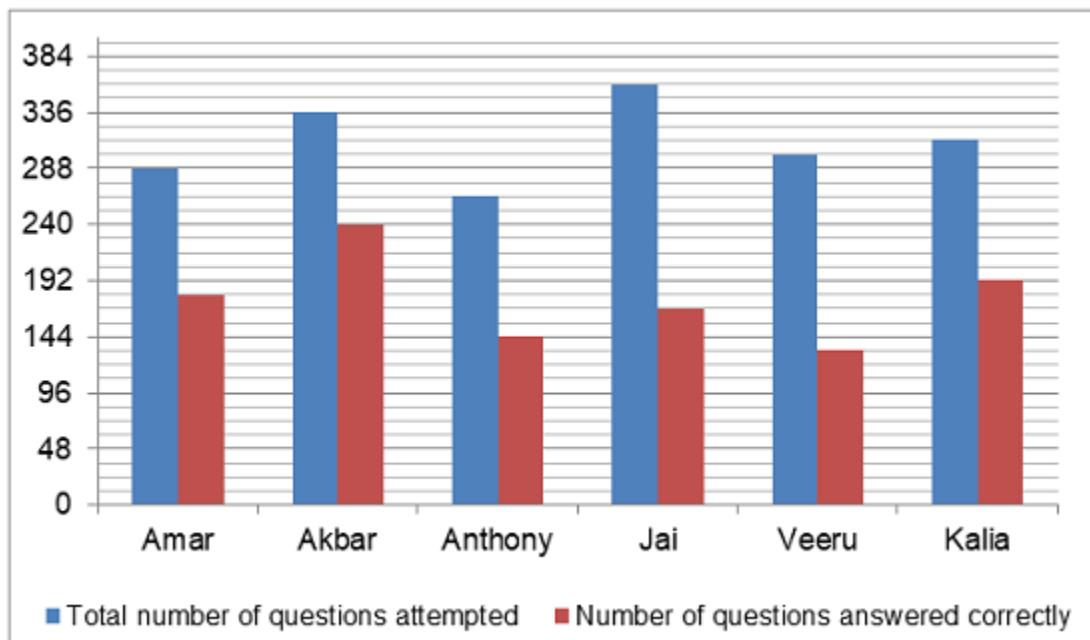
$$\text{Desired ratio} = 40:36 = 10:9$$

Hence, option b.

Topic – Data Interpretation (Bar Graphs on Absolute Values)

(67-68) Directions: Answer the questions based on the information given below.

The bar graph given below shows total number of questions attempted by five different students in an exam and the number of questions which are answered correctly by the respective student.



67) What is the ratio of total number of question answered correctly by Amar and Anthony together to total number of questions attempted by Jai?

- a) 11:10
- b) 9:10
- c) 7:10
- d) 9:11

Correct Choice: b

Solution

Students	Total number of questions attempted	Number of questions answered correctly	Number of wrongly answered questions
Amar	288	180	$288 - 180 = 108$
Akbar	336	240	$336 - 240 = 96$
Anthony	264	144	$264 - 144 = 120$
Jai	360	168	$360 - 168 = 192$
Veeru	300	132	$300 - 132 = 168$
Kalia	312	192	$312 - 192 = 120$

$$\text{Desired ratio} = (180 + 144):360 = 324:360 = 9:10$$

Hence, option b.

68) If number of questions attempted by Amar, Akbar, Anthony and Kalia is represented in a pie chart then central angle made by number of questions attempted by Anthony is:

- a) 79.2°
- b) 89.2°
- c) 86.4°
- d) 100.8°

Correct Choice: a

Solution

Students	Total number of questions attempted	Number of questions answered correctly	Number of wrongly answered questions
Amar	288	180	$288 - 180 = 108$
Akbar	336	240	$336 - 240 = 96$
Anthony	264	144	$264 - 144 = 120$
Jai	360	168	$360 - 168 = 192$
Veeru	300	132	$300 - 132 = 168$
Kalia	312	192	$312 - 192 = 120$

Total number questions attempted by Amar, Akbar, Anthony and Kalia =
 $288 + 336 + 264 + 312 = 1200$

Desired Central angle = $264/1200 \times 360 = 79.2^\circ$

Hence, option a.

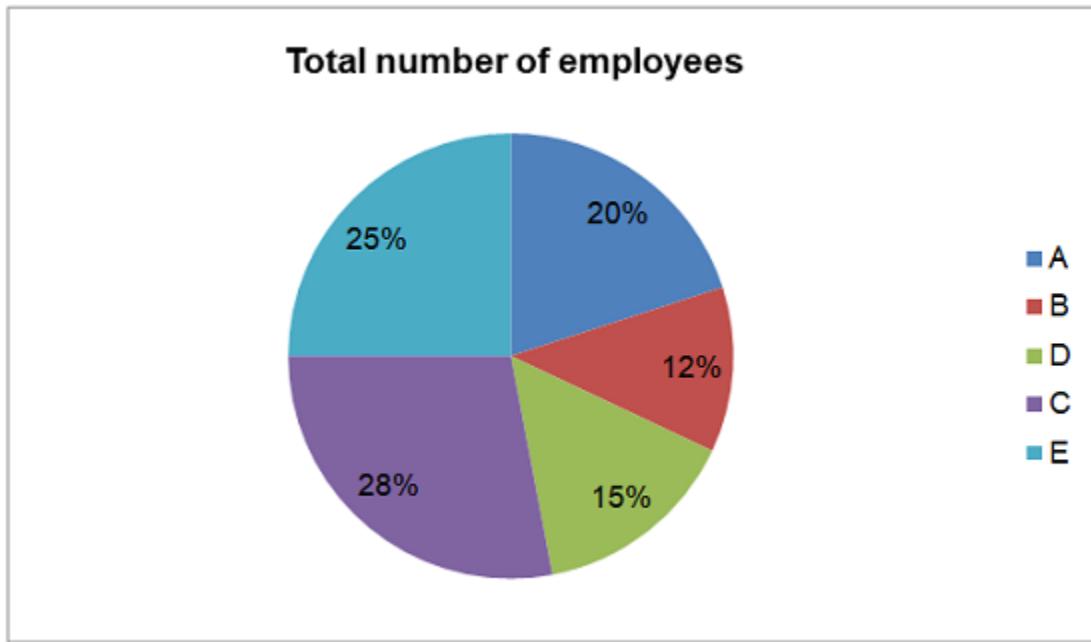
Topic – Data Interpretation (Dual Pie Chart on Percentages)

(69-70) Directions: Answer the questions based on the information given below.

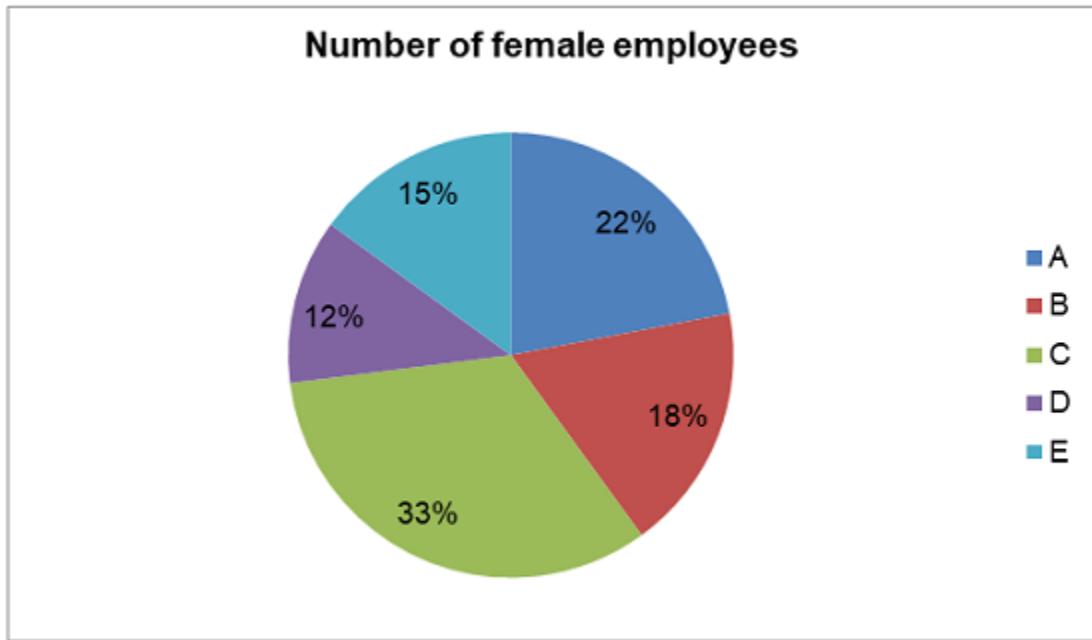
The pie chart given below shows the percentage distribution of total number employees in five companies.

Note:

1. Total number of employees in all five companies together = 3600
2. Total number of male employees in all five companies together = 2000



The pie chart given below shows the percentage distribution of number of female employees in all five companies.



69) Number of male employees in company D is 48% of total number of employees in company F. If the ratio of number of male to female employees in company F is 3:2, then find the number of male employees in company F.

- a) 475
- b) 415
- c) 435
- d) 425

Correct choice: c

Solution

Number of female employees in all five companies together = $3600 - 2000$
 $= 1600$

Companies	Total number of employees	Number of female employees	Number of male employees
A	$0.20 \times 3600 = 720$	$0.22 \times 1600 = 352$	$720 - 352 = 368$
B	$0.12 \times 3600 = 432$	$0.18 \times 1600 = 288$	$432 - 288 = 144$
C	$0.28 \times 3600 = 1008$	$0.33 \times 1600 = 528$	$1008 - 528 = 480$
D	$0.15 \times 3600 = 540$	$0.12 \times 1600 = 192$	$540 - 192 = 348$
E	$0.25 \times 3600 = 900$	$0.15 \times 1600 = 240$	$900 - 240 = 660$

Total number of employees in company F = $348/0.48 = 725$

Number of male employees in company F = $3/5 \times 725 = 435$

Hence, option c.

70) Number of female employees in company C is how much percent more/less than number of male employees in same company?

- a) 12%
- b) 10%
- c) 15%
- d) 20%

Correct Choice: b

Solution

Number of female employees in all five companies together = $3600 - 2000 = 1600$

Companies	Total number of employees	Number of female employees	Number of male employees
A	$0.20 \times 3600 = 720$	$0.22 \times 1600 = 352$	$720 - 352 = 368$
B	$0.12 \times 3600 = 432$	$0.18 \times 1600 = 288$	$432 - 288 = 144$
C	$0.28 \times 3600 = 1008$	$0.33 \times 1600 = 528$	$1008 - 528 = 480$
D	$0.15 \times 3600 = 540$	$0.12 \times 1600 = 192$	$540 - 192 = 348$
E	$0.25 \times 3600 = 900$	$0.15 \times 1600 = 240$	$900 - 240 = 660$

$$\text{Desired Percentage} = [(528 - 480)/480] \times 100 = 10\%$$

Hence, option b.

Topic – Simplifications

71) If $x^2 + 16x - 5 = 0$, then find the value of $5x/(x^2 - 9x - 5)$.

- a) 1/7
- b) 1/9
- c) -1/3
- d) -1/5

Correct Choice: d

Solution

$$5x/(x^2 - 9x - 5)$$

$$= 5x/(x^2 + 16x - 5 - 25x)$$

$$= 5x/-25x = -1/5$$

Hence, option d.

Topic – Averages

72)

The average of 50 observations is 42. Later it was found that 46 was misread as 64. Find the correct average.

- a) 41.64
- b) 40.58
- c) 39.88
- d) 40.36

Correct Choice: a

Solution

$$\text{Correct average} = \{(50 \times 42) - 64 + 46\}/50 = 41.64$$

Hence, option a.

Topic – Simplifications

73) Find the value of $\{(2744)^{1/3} \times 25\} \div 7$.

- a) 20
- b) 30
- c) 40
- d) 50

Correct Choice: d

Solution

$$\begin{aligned}\{(2744)^{1/3} \times 25\} \div 7 \\ = (14 \times 25) \div 7 = 50\end{aligned}$$

Hence, option d.

Topic – Simple Interest – Compound Interest

74) Sourav invested Rs. 2500 on 30% p.a. compound interest, compounded annually for 2 years. He then gave 20% of the amount received at 40% p.a. simple interest for 3 years. Find the simple interest received.

- a) Rs. 1242
- b) Rs. 1014
- c) Rs. 972
- d) Rs. 1146

Correct Choice: b

Solution

Amount received at compound interest = $2500(1 + 30/100)^2 = \text{Rs. } 4225$

Interest received at simple interest = $(0.20 \times 4225 \times 40 \times 3)/100 = \text{Rs. } 1014$

Hence, option b.

Topic –

75) If $(p/q) + (q/p) = 2$, then find the value of $(p^3 + q^3)/pq$

- a) 0
- b) $(p + q)$
- c) -1
- d) $-(p + q)$

Correct Choice: b

Solution

$$(p/q) + (q/p) = 2$$

$$= (p^2 + q^2) = 2pq$$

$$\text{Or, } p^2 + q^2 - pq = pq$$

Therefore,

$$(p^3 + q^3)/pq = \{(p+q)(p^2 + q^2 - pq)\}/pq$$

$$\text{Or, } (p^3 + q^3)/pq = \{(p+q)pq\}/pq = (p + q)$$

Hence, option b.

Topic – Divisibility Rules

76) For what least value of x, the number $203x88$ is divisible by 36

- a) 4
- b) 6
- c) 3
- d) 2

Correct Choice: b

Solution

Since the number is divisible by 36 therefore, it has to be divisible by 9 and 4 both

The number formed by the last two digits is 88, therefore, the whole number is divisible by 4

For the number to be divisible by 9, the sum of the numbers should be divisible by 9

$$(2 + 0 + 3 + x + 8 + 8) = (21 + x)$$

Therefore, least number which will make the number divisible by 9 is 6.

Hence, option b.

Topic – Areas

77) The ratio of the perimeters of a rectangular and squared field is 7:6. Each side of the squared field is equal to the breadth of the rectangle. Find the length of the rectangular field if the area of the rectangular field is 4800 m².

- a) 60 metres
- b) 80 metres
- c) 40 metres
- d) 120 metres

Correct Choice: b

Solution

Let the perimeters of the rectangular and squared field be $7x$ metres and $6x$ metres respectively

Therefore, breadth of the rectangular field = $6x/4 = 1.5x$ metres

Or, $2(l + b) = 7x$

Or, $l = 3.5x - 1.5x = 2x$ metres

According to the question,

$$2x \times 1.5x = 4800$$

$$\text{Or, } x^2 = 1600$$

$$\text{Or, } x = 40 \text{ metres}$$

Therefore, length of the rectangular field = $2x = 80$ metres

Hence, option b.

Topic – Ratios & Proportions

78) The ratio of the number of boys and girls in school ‘A’ is 6:5, respectively and that in school ‘B’ is 8:3, respectively. The number of boys and girls in school ‘A’ is 100 less and 100 more than that in ‘B’. Find the total number of students in school ‘A’.

- a) 450
- b) 600
- c) 550
- d) 720

Correct Choice: c

Solution

Let the number of boys and girls in school ‘A’ be $6x$ and $5x$ respectively

Therefore, number of boys and girls in school ‘B’ be $8y$ and $3y$ respectively

According to the question,

$$6x - 8y = -100 \dots\dots (1)$$

$$5x - 3y = 100 \dots\dots (2)$$

On solving equation (1) and (2), we get

$$x = 50$$

Therefore, total number of students in school ‘A’ = $6x + 5x = 11x = 550$

Hence, option c.

Topic – Trigonometry

79) The value $(\cos 37^\circ - \sin 53^\circ) + (\sec 41^\circ - \operatorname{cosec} 49^\circ) + (\tan 78^\circ - \cot 12^\circ) + (\tan^2 56^\circ - \sec^2 56^\circ)$ is

- a) 1
- b) 0
- c) -1
- d) 2

Correct Choice: c

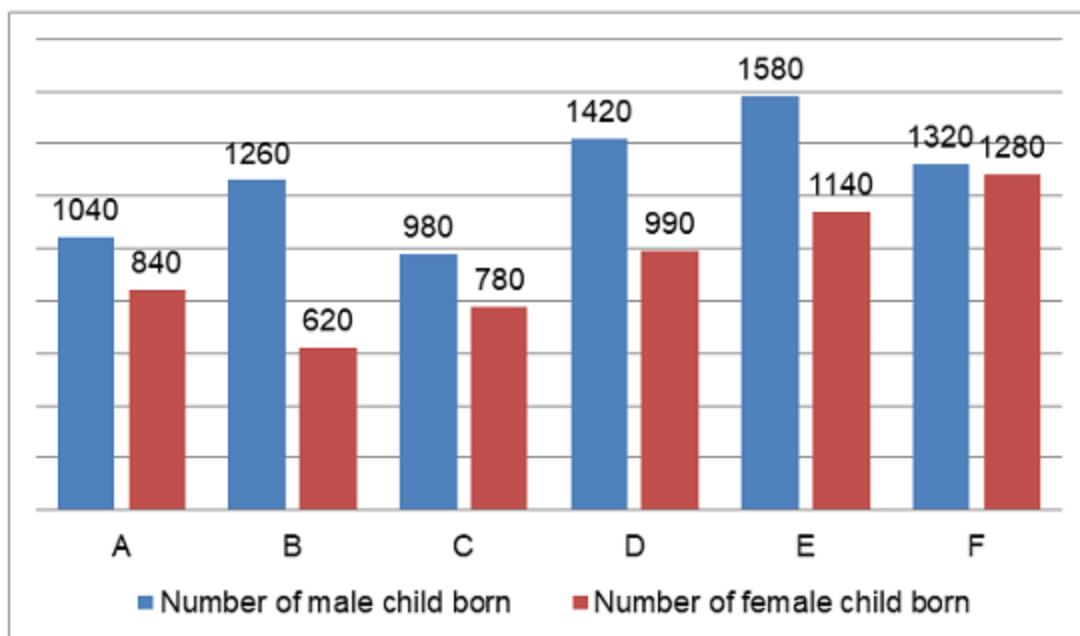
Solution

$$\begin{aligned} & (\cos 37^\circ - \sin 53^\circ) + (\sec 41^\circ - \operatorname{cosec} 49^\circ) + (\tan 78^\circ - \cot 12^\circ) + (\tan^2 56^\circ - \sec^2 56^\circ) \\ &= \{\cos 37^\circ - \sin(90 - 37^\circ)\} + \{\sec 41^\circ - \operatorname{cosec}(90 - 41^\circ)\} + \{\tan 78^\circ - \cot(90 - 78^\circ)\} + (-1) \\ &= (\cos 37^\circ - \cos 37^\circ) + (\sec 41^\circ - \sec 41^\circ) + (\tan 78^\circ - 78^\circ) - 1 \\ &= -1 \end{aligned}$$

Hence, option c.

Topic – Data Interpretation (Bar Graphs on Absolute values)

80) The given bar graph shows the number of births of male and female child in six different cities in a month.



Find the difference between the total number of male child born in 'B' and 'C' together and total number of female child born in 'D' and 'E' together.

- a) 150
- b) 180
- c) 240
- d) 110

Correct Choice: d

Solution

$$\text{Required difference} = (1260 + 980) - (990 + 1140) = 110$$

Hence, option d.

TCS NQT Mock – 1

Verbal Ability

Topic – Reading Comprehension

(1-5) Directions: Read the passage carefully and answer the questions that follow.

Over the past 18 months, corporate India and the world of finance has been roiled by a peculiar problem: the promoters of a slew of companies have been eased out of board rooms because they pledged their shares to avail loans and then defaulted.

The suicide of Cafe Coffee Day's V.G. Siddhartha in July this year; the roller-coaster ride that Yes Bank Ltd's stock went through when its former promoter Rana Kapoor dealt with lenders; and even the unfolding financial scandal at Karvy Stock Broking Ltd have one thing in common—the use, or rather, overuse of a humble instrument called LAS (loan against shares).

The product has been in existence since trading began in Indian markets. It was primarily meant as a tool for stock market operators, who used their existing shares as security to borrow and speculate in the market. It was meant to be short term. And the sums were supposed to be small. Traditional banks even have an upper limit: Rs.20 lakh, if the collateral is purely shares (not applicable to brokerage firms). But mutual funds and non-banking financial companies (NBFCs) have no such limit.

Caught in a credit squeeze and a slowdown in traditional bank lending, promoters increasingly began to rely on pledged share to raise funds. In many cases, those funds came in through channels that are relatively less regulated than traditional banks, setting up a perfect storm.

When economic growth began to fall and “sentiments” began to collapse, lenders inevitably began calling in on the pledge or, in some cases, even selling the equity, reducing company promoters to minor shareholders in their own firms. The fortunes of at least six big promoters are on the line, including Zee Entertainment Enterprises Ltd’s Subhash Chandra and Reliance Group’s Anil Ambani.

The sparkling diamonds, or shares, which are forever, are usually never meant to be sold. It is the equivalent of bringing out the family silver. “How do you get funding in any market—you borrow, beg or steal,” said Amit Tandon, managing director of Institutional Investors Advisory Services (IIAS). “In a bad market such as this, borrowing is not happening because no one will lend. You are too proud to beg. So, you steal from your existing pool which is shares, pledge them, and borrow.”

Perhaps, the promoters never thought they would lose control. Perhaps, corporate India never anticipated a multi-quarter economic slowdown. Perhaps, internal risk-management mechanisms were extremely weak resulting in risky hedges and abuse of LAS. One thing is certain though: The unfolding saga of India Inc.’s troubled dalliance with LAS captures, in many ways, the degree of desperation among certain sections of the business community. It is a cautionary tale which could only get worse before it gets any better.

As per regulations issued by capital market regulator Securities and Exchange Board of India (SEBI), a company needs to disclose the amount of pledged shares, when the pledge is created, to whom the shares are pledged, and for what reason they have been pledged.

However, an analysis done by Mint shows that despite regulatory tightening, the disclosures are missing. In the case of at least four companies including Yes Bank, firms have not even disclosed to whom the shares have been pledged—a clear violation of disclosure norms.

Other companies such as Zee Entertainment, the Adani Group, GMR Group and Vedanta Ltd practice a more innovative strategy. They disclose the name of the trustee but not the pledgee, giving investors no indication regarding the purpose of the pledge.

For quite some time, SEBI and RBI have been on the same page regarding the need to crack down on excessive pledging. **The capital market regulator had expressed concern particularly about how regulated mutual funds have now assumed the role of lenders, rather than acting on behalf of investors.**

Several mutual funds have begun to invest in LAS products in their fixed maturity plan schemes, that is, papers with pledged shares as the underlying collateral. Due to a fear of default, the funds sometimes roll over the maturity date in the hope that a stake sale would result in realization of dues. SEBI has taken one step after another to stem this practice.

1) Why did the promoters of many companies not find a seat in the board room?

- a) They were interested in dealing in stocks, rather than managing the companies.
- b) They pledged their shares for loans, but could not settle the due.
- c) The stocks of the companies plummeted and they became minor shareholders.
- d) None of the above

Correct Choice: b

Explanation:

Refer:

Over the past 18 months, corporate India and the world of finance has been roiled by a peculiar problem: the promoters of a slew of companies have been eased out of board rooms because they pledged their shares to avail loans and then defaulted.

Obviously, option B is the correct answer.

2) Which of the following statements are true regarding the financial instrument ‘loan against shares’ (LAS)?

- a) Traditional banks don't have any upper limit while issuing loans through LAS.
- b) NBFCs do not have the authority to issue loans through LAS.
- c) The financial instrument LAS primary was designed to issue loans for long term.
- d) None of the above

Correct Choice: d

Explanation:

Refer:

The product has been in existence since trading began in Indian markets. It was primarily meant as a tool for stock market operators, who used their existing shares as security to borrow and speculate in the market. *It was meant to be short term*. And the sums were supposed to be small. *Traditional banks even have an upper limit: Rs.20 lakh*, if the collateral is purely shares (not applicable to brokerage firms). But mutual funds and *non-banking financial companies (NBFCs) have no such limit*.

Obviously, option D is the correct answer.

3) What does the author mean by the expression: ‘It is a cautionary tale which could only get worse before it gets any better.’?

- a) The incident can get become worse before showing signs of improvement, and all businessmen should learn from it.
- b) The tale is a proverbial one and some experience is to be gained from it.
- c) No promoter should ever take loan through LAS and the situation should be remembered by all.
- d) None of the above

Correct Choice: a

Explanation:

“Cautionary tale” means ‘A story of warning’.

“Which could only get worse before it gets any better” means ‘the crisis may get worse, before situation improves’.

Only the sentence given in option A explains the statement given in the question appropriately.

Hence, option A is the correct answer.

4) What does the analysis done by Mint show?

- a) The analysis shows that regulations issued by SEBI mandate a company to disclose the amount of pledged shares, when the pledge is created, to whom the shares are pledged, and for what reason they have been pledged.
- b) The analysis shows that at least four companies are in violation of the regulatory norms issued by SEBI.
- c) The analysis shows that many companies disclose the name of the trustee but not the pledgee, giving investors no indication regarding the purpose of the pledge.
- d) B and C

Correct Choice: d

Explanation:

Refer:

As per regulations issued by capital market regulator Securities and Exchange Board of India (SEBI), a company needs to disclose the amount of pledged shares, when the pledge is created, to whom the shares are pledged, and for what reason they have been pledged.

However, an analysis done by Mint shows that despite regulatory tightening, the disclosures are missing. In the case of at least four companies including Yes Bank, firms have not even disclosed to whom the shares have been pledged—a clear violation of disclosure norms. Other companies such as Zee Entertainment, the Adani Group, GMR Group and Vedanta Ltd practice a more innovative strategy. They disclose the name of the trustee but not the pledgee, giving investors no indication regarding the purpose of the pledge.

The statement given in option A is true, except, the statement has no

relation with the analysis done by Mint.

Hence, option D is the correct answer.

5) Which of the following is the author's opinion regarding shares?

- a) The author compares 'share' with 'sparkling diamond'.
- b) The author thinks that usually one should never sell 'shares'.
- c) The author draws an analogy between 'shares' and 'family silver'.
- d) A, B and C

Correct Choice: d

Explanation:

Refer:

The sparkling diamonds, or shares, which are forever, are usually never meant to be sold. It is the equivalent of bringing out the family silver. "How do you get funding in any market—you borrow, beg or steal," said Amit Tandon, managing director of Institutional Investors Advisory Services (IIAS). "In a bad market such as this, borrowing is not happening because no one will lend. You are too proud to beg. So, you steal from your existing pool which is shares, pledge them, and borrow."

Obviously, option D is the correct answer.

Topic – Error Location

(6-8) Directions: In this question, a sentence has been divided into four parts marked as I, II, III and IV. You need to find which part/parts does not/do not have any error in terms of grammatical or contextual usage. If the sentence is absolutely correct, mark (D) as your answer.

6)

- I. A tradition, said to have been starting by St Francis of Assisi
 - II. in 1223 at Greccio, central Italy, the Nativity scene
 - III. emphasises the spiritual aspects of Christ's birth and advocates
 - IV. worship over materialism during the festivity season.
-
- a) Only I, II and III
 - b) Only I and III
 - c) Only II and III
 - d) No error

Correct Choice: c

Explanation:

The errors are in part I and part IV.

Reason:

In part I, “have been starting” is erroneous. The correct word in place of “starting” should have been “started”.

In part IV, the word “worship” is erroneous. The correct word in place of “worship” should have been “worshiping”. [“Worshiping” and “materialism” are both nouns.]

The rest of the parts are correct.

Hence, option C is the correct answer. Only I, II and III

(6-8) Directions: In this question, a sentence has been divided into four parts marked as I, II, III and IV. You need to find which part/parts does not/do not have any error in terms of grammatical or contextual usage. If the sentence is absolutely correct, mark (E) as your answer.
7)

- I. The consumer economy scorecard
- II. of India appear particularly bleak,
- III. with vehicle sales growth losing momentum,
- IV. after hinting at a turnaround in the previous month.

- a) Only I and II
- b) Only I, III and IV
- c) Only I and III
- d) No Error

Correct Choice: b

Explanation:

The error is in part II.

Reason:

The subject of the sentence (The consumer economy scorecard) is singular. Hence, the verb should also be singular.

The verb (appear) given in part II is a plural verb. This is incorrect.

The correct verb in place of “appear” should have been “appears”.

The rest of the parts are correct.

Hence, option B is the correct answer.

(6-8) Directions: In this question, a sentence has been divided into four parts marked as I, II, III and IV. You need to find which part/parts does not/do not have any error in terms of grammatical or contextual usage. If the sentence is absolutely correct, mark (E) as your answer.

8)

- I. With new tools and new expeditions,
- II. scientists are peering into Antarctica's nooks and crannies
- III. and even its subsurface, discovering a world
- IV. that seems unimaginable from more temperate climes.

- a) Only I and II
- b) Only I and III
- c) Only II and III
- d) No Error

Correct Choice: d

Explanation:

There is no error in the given sentence.

The sentence is absolutely correct.

Hence, option D is the correct answer.

Topic - Active Voice / Passive Voice

9) Choose the most appropriate option to change the voice (active / passive) form of the given sentence.

I am to do it immediately.

- a) It is supposed to be done by me immediately.
- b) It has to be done by me immediately.
- c) It is to be done by me immediately.
- d) It is being done by me immediately.

Correct Choice: c

Explanation:

Given Sentence:

I am to do it immediately.

In the above sentence, the subject 'I' is performing the action, so the sentence is made in active voice.

The given sentence is made in present tense using an infinitive which here shows the sense of near future.

Rule:

Object in the original sentence + am/is/are + to be + V₃ + Prep + Subject in the original sentence + other word

Passive Voice:

It is to be done by me immediately.

Hence, option C is the correct answer.

Topic – Phrase Replacement

10) Identify the best way to improve the bold part of the given sentence. If there is no improvement required, select ‘No improvement’.

In today's time, many private companies **follow the concept** of corporate social responsibility.

- a) Follows the concept
- b) follow the concepts
- c) follows the concepts
- d) No improvement

Correct Choice: d

Explanation:

The above sentence is absolutely correct so no correction is required.

Hence, option D is the correct answer.

Topic – Para – Jumbled Sentences

11) Given below are four jumbled sentences. Pick the option that gives their correct order.

- A. The shift to stringent emissions norms, the transition to electrification, and potentially changing consumer preferences with shared mobility and a connected ecosystem.
 - B. Change may be the only constant, but the pace with which it takes place is not.
 - C. There are primarily three factors causing this disruption.
 - D. The automotive industry is seeing a spectrum of disruptions, as we move towards a cleaner, safer and convenient transport ecosystem.
- a) DACB
 - b) CABD
 - c) CDAB
 - d) BDCA

Correct Choice: d

Explanation:

If we read all the sentences, we can infer that they are not in a correct order.

After reading all the sentences, we can clearly say that 'B' is the only opening statement of the passage.

Further, a supportive statement to the previous one comes in place that is

'D' will follow 'B'.

Then, 'C' will come after 'D' as the linking part is 'disruptions'.

Lastly, 'A' will end the passage describing all the three factors.

Thus, we get the final arrangement: BDCA

Hence, option D is the correct answer.

Topic – Direct / Indirect Speech

12) Choose the most appropriate option to change the Narration (direct/indirect) form of the given sentence.

Meena inquired of me why I had done that.

- a) Meena told me, "Why did I do that?"
- b) Meena said to me, "Why did you do that?"
- c) Meena said to me, "Why did you do this?"
- d) Meena asked me, "Why did you did this?"

Correct Choice: c

Explanation:

As there are no quotes in the sentence, it is the case of an indirect narration.

Reporting Speech Tense: Past Indefinite

Reported Speech: The indirect narration is given in Past Perfect Tense so it will reversely be converted into Past Indefinite Tense.

Changes to be followed:

Reporting verb ⇒ said to

I ⇒ You

Had ⇒ did

Done ⇒ do

That ⇒ this

The sentence in direct speech will become:

Meena said to me, "Why did you do this?"

Option C is hence the correct answer.

Topic – Phrase Replacement

13) Identify the best way to improve the bold part of the given sentence. If there is no improvement required, select 'No improvement'.

The blogger **asks their followers** to share the feedback on his recent post.

- a) asked their follower
- b) asked his followers
- c) asks his followers
- d) No improvement

Correct Choice: b

Explanation:

First of all, if we look at the sentence it says 'blogger' that means it is only talking about one person so it shows that correction is required so option D gets eliminated and we cannot use 'their' for a singular person so option A is also eliminated.

Secondly, the sentence conveys that the task has already been completed so it has to be in past tense so the option we are left is B.

Correct sentence-

The blogger asked his followers to share the feedback on his recent post.

Hence, option B is the correct answer.

Topic – Para – Jumbled Sentences

(14-15) Given below are four jumbled sentences. Pick the option that gives their correct order.

14)

- A. Instead of spending meagre local resources to rebuild faltering demand, India is betting that world's growth this year will be down in the dumps.
- B. Luring overseas investors to high yielding Indian assets is the preferred strategy.
- C. An all-out push to revive its sputtering economy is not within India's reach.
- D. And that will make India appear attractive to foreigners even when it really isn't.

- a) DACB
- b) CADB
- c) CDAB
- d) BDAC

Correct Choice: b

Explanation:

If we read all the sentences, we can infer that they are not in a correct order.

If we observe all the sentences carefully, we can understand that 'C' is the opening statement of the passage.

Further, 'C' is followed by 'A' A is providing a solution to the problem which is continued in 'D' and lastly, 'B' will end the passage on a positive note.

Thus, we get the final arrangement: **CADB**

Hence, option B is the correct answer.

(14-15) Given below are four jumbled sentences. Pick the option that gives their correct order.

15)

- A. Especially where the penetration of mobile telephony and social media exceeds that of education and awareness.
 - B. Also because it may induce people to act on the information.
 - C. Fake news is a menace because it is usually motivated by an intent to deceive and misinform.
 - D. This can have grave consequences beyond imagination.
-
- a) DACB
 - b) CBDA
 - c) CDAB
 - d) DBAC

Correct Choice: b

Explanation:

If we read all the sentences, we can infer that they are not in a correct order.

Among all the above sentences, it is very clear to find out that the opening statement is 'C' as the whole passage revolves around 'fake new'.

Further, 'C' is followed by 'B' as it continues to mention the reasons behind spread of fake news.

The, 'D' will follow 'B' because it is stating its impact which is followed by 'A' that is continuing stating its impacts.

Thus, we get the final arrangement: **CBDA**

Hence, option B is the correct answer.

Topic – Error Location

16) Identify the segment in the sentence, which contains the grammatical error.

The egg were fragile, with the thin outer shell protecting its liquid interior until it was put in the boiling water.

- a) with the thin outer shell
- b) The egg were fragile,
- c) it was put in the boiling water.
- d) protecting its liquid interior until

Correct Choice: b

Explanation:

Fragment B of the sentence is erroneous.

Reason:

The usage of '**were**' (second person singular past, plural past, and past subjunctive of the verb 'to be') is incorrectly used with the singular noun 'egg.'

Thus, it shall be replaced with '**was**' (first and third person singular past of the verb 'to be').

[*Forms of the verb **to be**: be, am, is, are, was, were, will be, being, been.]

Correct Sentence:

The egg was fragile, with the thin outer shell protecting its liquid interior until it was put in the boiling water.

Thus, Option B is the correct answer.

Topic – Active / Passive Voice

17) Choose the most appropriate option to change the voice (active / passive) form of the given sentence.

Somebody built the house last year.

- a) The house has been built last year.
- b) The house is built last year by someone.
- c) The house was being built last year by somebody.
- d) The house was built last year.

Correct Choice: d

Explanation:

Given Sentence:

Somebody built the house last year.

In the above sentence, the subject ‘Somebody’ is performing the action, so the sentence is made in active voice.

The given sentence is in Past Indefinite Tense.

Rule:

Object in the original sentence + was/were + V₃ + Other word.

(Note: Make sure, the subject ‘somebody’ is generally not used in the last as ‘by somebody’ while converting the sentence into passive voice.)

Passive Voice:

The house was built last year.

Hence, option D is the correct answer.

Topic – Phrase Replacement

18) Identify the best way to improve the bold part of the given sentence. If there is no improvement required, select 'No improvement'.

We all can succeed if we **focus major on** our personal growth.

- a) focus majorly on
- b) focuses majorly at
- c) focused majority on
- d) No improvement

Correct Choice: a

Explanation:

Here in this sentence we need an adverb (majorly) not 'noun/verb'/adjective' (major) right after 'Focus'.

Correct sentence-

We all can succeed if we focus majorly on our personal growth.

Hence, option A is the correct answer.

Topic – Para- Jumbled Sentences

19) Given below are four jumbled sentences. Pick the option that gives their correct order.

A. Banijay's acquisition of the Endemol Shine Group globally may still be a work-in-progress, but the latter is already working on the Dutch show Penoza for India.

B. The Indian arm of Paris-based company Banijay Group is developing the Indian versions of American reality show Survivor and legal thriller Damages, Belgian TV series The Mole and Turkish drama Public Enemy.

C. Meanwhile, Sameer Nair-led Applause Entertainment is bringing the Indian versions of Israeli shows Your Honour and Fauda.

D. New-age content creators on video streaming services are now looking at popular international formats that they can localize as the next bait to hook Indian audiences.

- a) DBAC
- b) CABD
- c) CDAB
- d) BDCA

Correct Choice: a

Explanation:

If we read all the sentences, we can infer that they are not in a correct order.

After reading all the statements, we can notice that 'D' will come as the starting point of the passage as it is the lone sentence that is making some sense as the opening statement.

Further, 'B' will follow 'D' as it is continuing the concept of streaming services and then 'A' will follow 'B' because we can say that 'Banijay' is the linking part for better and easy understanding of the context.

Lastly, the remaining part 'C' will conclude the passage in the same context.

Thus, we get the final arrangement: **DBAC**

Hence, option A is the correct answer.

Topic – Error Location

20) Identify the segment in the sentence, which contains the grammatical error.

Once upon a time, a daughter complained to her father that his life was miserable and that she didn't know how she was going to make it.

- a) life was miserable and that she
- b) complained to her father that his
- c) didn't know how she was going to make it.
- d) Once upon a time, a daughter

Correct Choice: b

Explanation:

Fragment B of the sentence is erroneous.

Reason:

The usage of determiner '**his**' is incorrect in the phrase 'his life.' The determiner 'his' – refers to 'belonging to or associated with a male person or animal previously mentioned or easily identified.'

However, it is the female 'daughter' who is complaining to her father. Thus, it shall be replaced with '**her**.' The determiner 'her' – is used as the object of a verb or preposition to refer to a female person or animal previously mentioned or easily identified.

Ex. Ram was very concerned about **his** future.

Ex. Jenna was looking forward to **her** promotion.

[***Determiner** – refers to a modifying word that determines the kind of reference a noun or noun group has, for example a, the, that, his, every.]

Correct Sentence:

Once upon a time, a daughter **complained to her father that her** life was miserable and that she didn't know how she was going to make it.

Thus, option B is the correct answer.

Topic – Active / Passive Voice

21) Choose the most appropriate option to change the voice (active / passive) form of the given sentence.

A book has been given to me by him last week.

- a) He has been given me a book last week.
- b) He has given me a book last week.
- c) He has gave me a book last week.
- d) A book has to be given to me last week.

Correct Choice: b

Explanation:

Given Sentence:

A book has been given to me by him.

In the above sentence, the subject 'A book' is receiving the action and hence the sentence is in passive voice.

The given sentence is given in Present Perfect Tense.

Rule:

Object in the original sentence + has/have + V₃ + Subject in the original sentence.

Active Voice:

He has given me a book.

Hence, option B is the correct answer.

Topic – Phrase Replacement

22) Identify the best way to improve the bold part of the given sentence. If there is no improvement required, select 'No improvement'.

In order to be successful, students must inculcate a **habits of discipline** routine.

- a) habit of discipline
- b) habit of disciplined
- c) habits of disciplined
- d) No improvement

Correct Choice: b

Explanation:

The mention of 'a' reflects that the use of plural noun (habits) with it is incorrect and we need to replace it with singular noun (habit) as well as we need an adjective (disciplined) right before the 'routine' not a noun/verb (discipline).

Correct sentence-

In order to be successful, students must inculcate a habit of disciplined routine.

Hence, option B is the correct answer.

Topic – Single Filler

23) Select the most appropriate option to fill in the blank.

The brain keeps _____ over one's life, its very structure shaped by a wide variety of stimuli all round.

- a) Evolving
- b) Accelerating
- c) Controlling
- d) balancing

Correct Choice: a

Explanation:

If we observe the sentence closely, we can understand the fact that our brain is made up of muscles and tissues that constantly changes its structure and form over time and this exact meaning can be well understood if we place 'evolving' in the blank above.

Clearly, option A is the correct answer.

Topic – Phrase Replacement

24) Identify the best way to improve the bold part of the given sentence. If there is no improvement required, select 'No improvement'.

Parents should encourage their **child** to **participating** in recreational activities as well.

- a) children to participate
- b) children for participation
- c) child to participate
- d) No improvement

Correct Choice: a

Explanation:

The presence of 'their' indicates that it has to be followed by plural noun (children) not singular noun (child) and we know the grammar rule 'to+V1' because we do not need a gerund here.

Correct sentence-

Parents should encourage their children to participate in recreational activities as well.

Hence, option A is the correct answer.

Reasoning Ability

Topic – Square Sitting Arrangement

(25-29) Directions: Read the following information carefully and answer the questions given beside.

Eight bottles from B1 to B8 were placed around a square table such that the bottles which have odd numbers in their name were placed at each of the corners while the bottles that have even number in their name were placed in the middle of each side of the table. All the bottles were facing towards the centre. B2 is third to the right of B7. B3 is on the immediate right of B4, which is adjacent to B7. B6 is not placed adjacent to B7. B1 is on the immediate left of B6.

25) Which of the following is on the immediate left of B5?

- a) B8
- b) B6
- c) B4
- d) B7

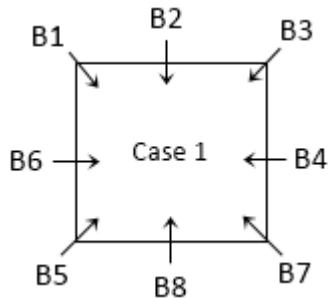
Correct Choice: b

Explanation:

B6 is on the immediate left of B5.

Hence option B is correct.

Final Arrangement:



Common Explanation:

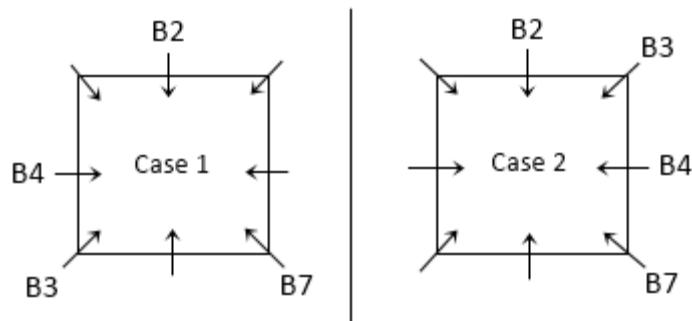
Reference:

B2 is third to the right of B7.

B3 is on the immediate right of B4, which is adjacent to B7.

Inference:

Following two cases occur with the given hints.



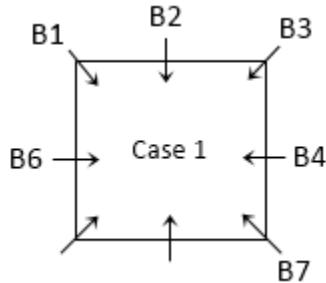
Reference:

B6 is not placed adjacent to B7.

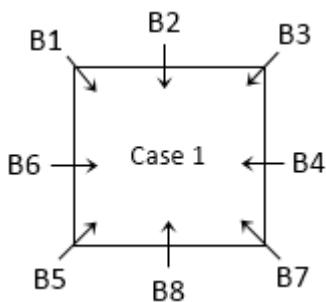
B1 is on the immediate left of B6.

Inference:

Case-1 fails, as B6 is adjacent to B7 in this case.



As we know that bottles with odd numbers are placed at the corners, thus B5 will be placed at the corner and B8 in the middle of the side.



26) How many bottles are placed between B3 and B8 when counted from the left of latter?

- a) 2
- b) 1
- c) 4
- d) 3

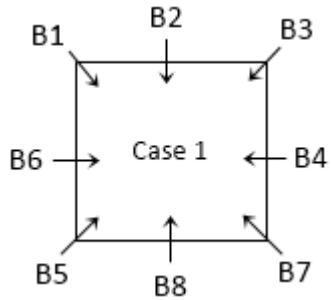
Correct Choice: c

Explanation:

4 bottles are placed between B3 and B8 when counted from the left of latter.

Hence option C is correct.

Final Arrangement:



Common Explanation:

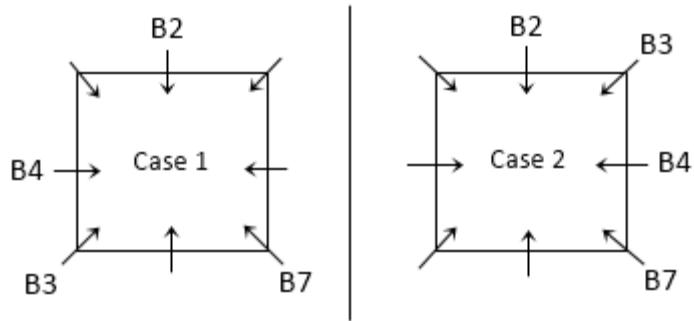
Reference:

B2 is third to the right of B7.

B3 is on the immediate right of B4, which is adjacent to B7.

Inference:

Following two cases occur with the given hints.



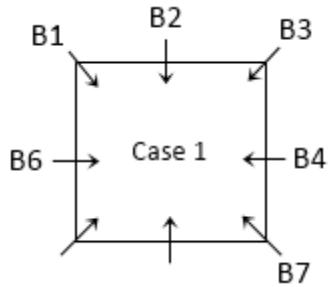
Reference:

B6 is not placed adjacent to B7.

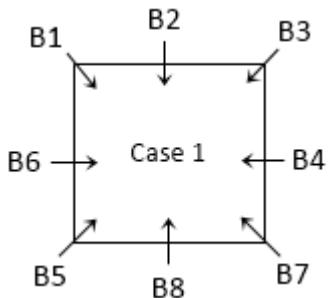
B1 is on the immediate left of B6.

Inference:

Case-1 fails, as B6 is adjacent to B7 in this case.



As we know that bottles with odd numbers are placed at the corners, thus B5 will be placed at the corner and B8 in the middle of the side.



27) Which of the following is placed opposite to B2?

- a) B8
- b) B7
- c) B5
- d) B6

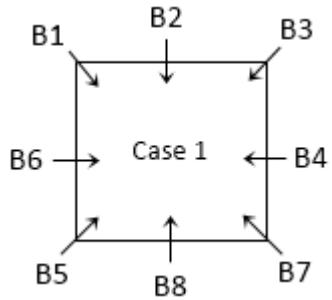
Correct Choice: a

Explanation:

B8 is placed opposite to B2.

Hence option A is correct.

Final Arrangement:



Common Explanation:

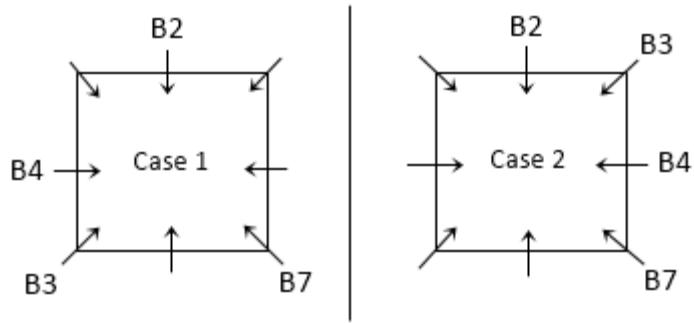
Reference:

B2 is third to the right of B7.

B3 is on the immediate right of B4, which is adjacent to B7.

Inference:

Following two cases occur with the given hints.



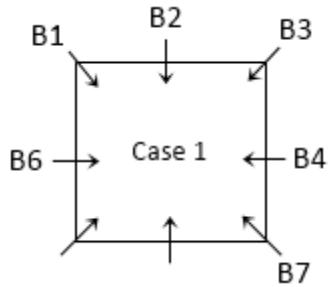
Reference:

B6 is not placed adjacent to B7.

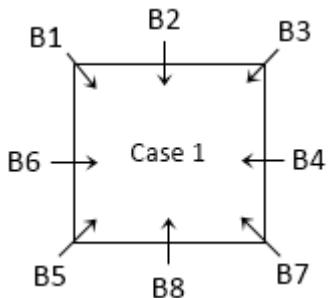
B1 is on the immediate left of B6.

Inference:

Case-1 fails, as B6 is adjacent to B7 in this case.



As we know that bottles with odd numbers are placed at the corners, thus B5 will be placed at the corner and B8 in the middle of the side.



28) Which of the following is third to the right of B4?

- a) B3
- b) B1
- c) B7
- d) B5

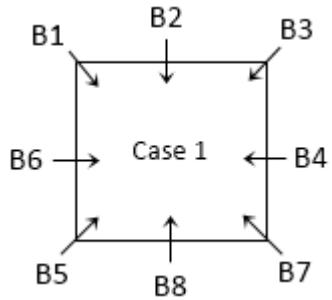
Correct Choice: b

Explanation:

B1 is third to the right of B4.

Hence option B is correct.

Final Arrangement:



Common Explanation:

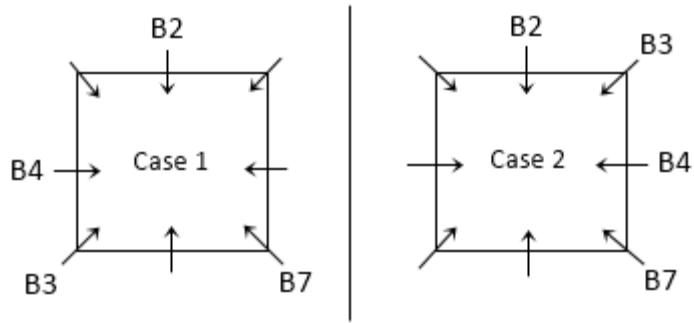
Reference:

B2 is third to the right of B7.

B3 is on the immediate right of B4, which is adjacent to B7.

Inference:

Following two cases occur with the given hints.



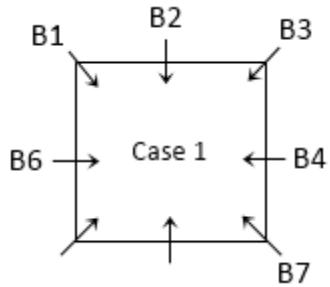
Reference:

B6 is not placed adjacent to B7.

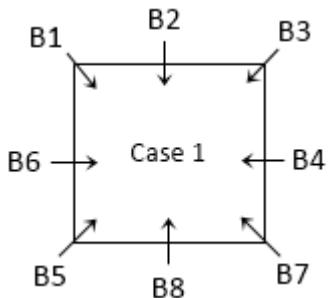
B1 is on the immediate left of B6.

Inference:

Case-1 fails, as B6 is adjacent to B7 in this case.



As we know that bottles with odd numbers are placed at the corners, thus B5 will be placed at the corner and B8 in the middle of the side.



29) Which of the following is placed exactly between B6 and B4 when counted from the right of B6?

- a) B2
- b) B8
- c) B7
- d) B5

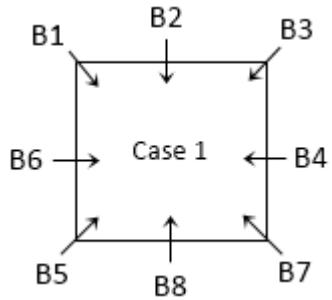
Correct choice: b

Explanation:

B8 is placed exactly between B6 and B4 when counted from the right of B6.

Hence option B is correct.

Final Arrangement:



Common Explanation:

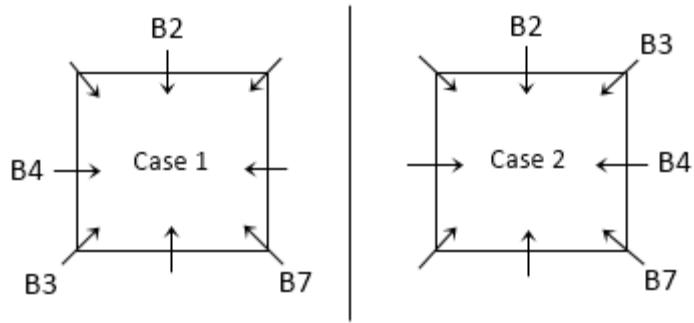
Reference:

B2 is third to the right of B7.

B3 is on the immediate right of B4, which is adjacent to B7.

Inference:

Following two cases occur with the given hints.



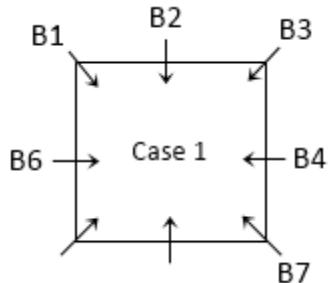
Reference:

B6 is not placed adjacent to B7.

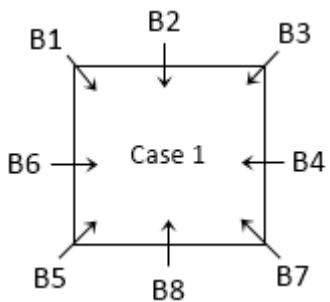
B1 is on the immediate left of B6.

Inference:

Case-1 fails, as B6 is adjacent to B7 in this case.



As we know that bottles with odd numbers are placed at the corners, thus B5 will be placed at the corner and B8 in the middle of the side.



Topic – Logical Inequalities

(30-32) If $S > R$, $T \geq U$, $P < R$, $T \leq V$, $V = E$, $E \leq S$ is true, then which of the following conclusions is definitely true?

30)

- a) $E \geq U$
- b) $E \geq P$
- c) $U < V$
- d) $P \leq S$

Correct Choice: a

Explanation:

After combining all the scattered equations, we can make the following expression:

$$U \leq T \leq V = E \leq S > R > P$$

$E \geq U$ is definitely true.

$E \geq P$ can't be definitely true because E and P share opposite signs.

$U < V$ could be true or false as the relationship between them is ' \leq '.

$P \leq S$ can't be definitely true because S and P share opposite signs.

Hence option A is correct.

(30-32) Which of the following is true if $D \leq R < T = K < L = P \leq W < Q > S$ holds definitely true?

31)

- a) $L < Q$
- b) $P > T$
- c) $R < L$
- d) All of the above

Correct Choice: d

Explanation:

With the given expression " $D \leq R < T = K < L = P \leq W < Q > S$ ", it is clear that all the given conclusions are definitely true.

Hence option D is correct.

(30-32) Which of the following set of symbols when filled in the blanks from left to right will make $D > E$ definitely true?

32)

$F _ D _ S _ R _ E$

- a) $>, \geq, =, \geq$
- b) $<, \geq, >, =$
- c) $<, <, \geq, >$
- d) $\geq, <, =, \geq$

Correct Choice: b

Explanation:

Let us check each of the options one by one.

Option A – On placing all the signs from left to right in the given blanks, we get the relationship between D and E as $D \geq E$, which is not the desired one, thus option A is incorrect.

$$F > D \geq S = R \geq E$$

Option B - On placing all the signs from left to right in the given blanks, we get the relationship between D and E as $D > E$, which is the required one, thus option B is correct.

$$F < D \geq S > R = E$$

Hence option B is correct.

Topic – Blood Relations

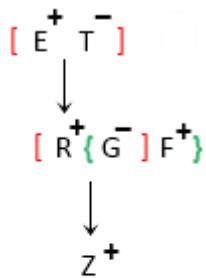
33) How is F related to Z, if R is the son of E. F is the brother of G. T is married to E. E is the father-in-law of G. Z is the grandson of T. T and E has only one child.

- a) Paternal Aunt
- b) Father
- c) Maternal Uncle
- d) Brother

Correct Choice: c

Explanation:

In such a case following relation tree can be observed.



- [] → Married Couple
- { } → Siblings
- + → Male
- → Female

Clearly, F is the maternal uncle of Z.

Hence option C is correct.

Topic – Days Based Puzzle

(34-38) Directions: Read the following information carefully and answer the questions given beside.

Seven cars from A to G of a tour & travel company travelled certain distances during seven days of a week starting from Sunday. Only one car travelled on one particular day. No two cars travelled same distance.

Further it is known that:

- Car B travelled before Car C, a distance more than only two cars.
- Car C travelled immediately after Car D, which travelled the second highest distance.
- Car E travelled the lowest distance on Monday.
- Car F travelled at a gap of two days from Car A, which travelled before Car F.
- Car C did not travel the highest distance.
- Car G travelled immediately after Car F but travelled less than Car B.
- Car D travelled a distance more than that of Car B on Friday.
- Car C travelled a distance more than Car A.

34) How many cars travelled before the car which had travelled the second lowest distance?

- a) 3
- b) 2
- c) 5
- d) 4

Correct Choice: d

Explanation:

Car G travelled the second lowest distance, thus 4 cars travelled before G.

Hence option D is correct.

Final Arrangement:

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	F
Monday	E	D
Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

Common Explanation:

Reference:

Seven cars from A to G of a tour & travel company travelled certain distances during seven days of a week starting from Sunday.

Only one car travelled on one particular day.

No two cars travelled same distance.

Inference:

We will keep these hints in mind while solving the puzzle, specially the second hint.

Reference:

- Car E travelled the lowest distance on Monday.
- Car D travelled a distance more than that of car B on Friday.
- Car C travelled immediately after Car D, which travelled the second highest distance.

Inference:

With the given hints following table can be prepared.

We will make a mental note of information that Car D travelled a distance more than that of Car B.

Note- The descending order of distance travelled by each car is indifferent of the days.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday		
Monday	E	D
Tuesday		
Wednesday		
Thursday		

Friday	D	
Saturday	C	E

Reference:

- Car B travelled before Car C, a distance more than only two cars.
- Car F travelled at a gap of two days from Car A, which travelled before Car F.
- Car G travelled immediately after Car F but travelled less than Car B.

Inference:

The only way to satisfy the second hint is When car F travelled on Wednesday and accordingly car A travelled on Sunday.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	
Monday	E	D
Tuesday	B	
Wednesday	F	
Thursday	G	B
Friday	D	G
Saturday	C	E

Reference:

- Car C did not travel the highest distance.
- Car C travelled a distance more than Car A.

Inference:

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	
Monday	E	D
Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

So, the only left out place is filled by the only left car i.e. Car F.

Thus the final arrangement is completed.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	F
Monday	E	D
Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

35) How many cars travelled after the one which travelled the second highest distance?

- a) 1
- b) 4
- c) 3
- d) 2

Correct Choice: a

Explanation:

Car D travelled the second highest distance, thus 1 car travelled after D.

Hence option A is correct.

Final Arrangement:

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	F
Monday	E	D
Tuesday	B	C
Wednesday	F	A

Thursday	G	B
Friday	D	G
Saturday	C	E

Common Explanation:

Reference:

Seven cars from A to G of a tour & travel company travelled certain distances during seven days of a week starting from Sunday.
 Only one car travelled on one particular day.
 No two cars travelled same distance.

Inference:

We will keep these hints in mind while solving the puzzle, specially the second hint.

Reference:

- Car E travelled the lowest distance on Monday.
- Car D travelled a distance more than that of car B on Friday.
- Car C travelled immediately after Car D, which travelled the second highest distance.

Inference:

With the given hints following table can be prepared.

We will make a mental note of information that Car D travelled a distance more than that of Car B.

Note- The descending order of distance travelled by each car is indifferent of the days.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday		
Monday	E	D

Tuesday		
Wednesday		
Thursday		
Friday	D	
Saturday	C	E

Reference:

- Car B travelled before Car C, a distance more than only two cars.
- Car F travelled at a gap of two days from Car A, which travelled before Car F.
- Car G travelled immediately after Car F but travelled less than Car B.

Inference:

The only way to satisfy the second hint is When car F travelled on Wednesday and accordingly car A travelled on Sunday.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	
Monday	E	D
Tuesday	B	
Wednesday	F	
Thursday	G	B
Friday	D	G
Saturday	C	E

Reference:

- Car C did not travel the highest distance.
- Car C travelled a distance more than Car A.

Inference:

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	
Monday	E	D
Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

So, the only left out place is filled by the only left car i.e. Car F.

Thus the final arrangement is completed.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	F
Monday	E	D
Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

36) If the highest travelled distance is 120 km, then which of the following cars have travelled such distance?

- a) D
- b) A
- c) F
- d) C

Correct Choice: c

Explanation:

Car F travelled the highest distance, so if the highest travelled distance is 120 km then Car F had travelled it.

Hence option C is correct.

Final Arrangement:

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	F
Monday	E	D

Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

Common Explanation:

Reference:

Seven cars from A to G of a tour & travel company travelled certain distances during seven days of a week starting from Sunday.

Only one car travelled on one particular day.

No two cars travelled same distance.

Inference:

We will keep these hints in mind while solving the puzzle, specially the second hint.

Reference:

- Car E travelled the lowest distance on Monday.
- Car D travelled a distance more than that of car B on Friday.
- Car C travelled immediately after Car D, which travelled the second highest distance.

Inference:

With the given hints following table can be prepared.

We will make a mental note of information that Car D travelled a distance more than that of Car B.

Note- The descending order of distance travelled by each car is indifferent of the days.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)

Sunday		
Monday	E	D
Tuesday		
Wednesday		
Thursday		
Friday	D	
Saturday	C	E

Reference:

- Car B travelled before Car C, a distance more than only two cars.
- Car F travelled at a gap of two days from Car A, which travelled before Car F.
- Car G travelled immediately after Car F but travelled less than Car B.

Inference:

The only way to satisfy the second hint is When car F travelled on Wednesday and accordingly car A travelled on Sunday.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	
Monday	E	D
Tuesday	B	
Wednesday	F	
Thursday	G	B
Friday	D	G
Saturday	C	E

Reference:

- Car C did not travel the highest distance.

- Car C travelled a distance more than Car A.

Inference:

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	
Monday	E	D
Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

So, the only left out place is filled by the only left car i.e. Car F.

Thus the final arrangement is completed.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	F
Monday	E	D
Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

37) Which of the following cars travelled higher distance than the car that travelled on Wednesday?

- a) D
- b) A
- c) E
- d) None of these

Correct Choice: d

Explanation:

Car F travelled on Wednesday and has travelled the highest distance. Thus no car has travelled higher distance than it.

Hence option D is correct.

Final Arrangement:

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	F

Monday	E	D
Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

Common Explanation:

Reference:

Seven cars from A to G of a tour & travel company travelled certain distances during seven days of a week starting from Sunday.

Only one car travelled on one particular day.

No two cars travelled same distance.

Inference:

We will keep these hints in mind while solving the puzzle, specially the second hint.

Reference:

- Car E travelled the lowest distance on Monday.
- Car D travelled a distance more than that of car B on Friday.
- Car C travelled immediately after Car D, which travelled the second highest distance.

Inference:

With the given hints following table can be prepared.

We will make a mental note of information that Car D travelled a distance more than that of Car B.

Note- The descending order of distance travelled by each car is indifferent of the days.

Days	Cars (in order of their day of	Cars (Descending order of distance

	travel)	travelled)
Sunday		
Monday	E	D
Tuesday		
Wednesday		
Thursday		
Friday	D	
Saturday	C	E

Reference:

- Car B travelled before Car C, a distance more than only two cars.
- Car F travelled at a gap of two days from Car A, which travelled before Car F.
- Car G travelled immediately after Car F but travelled less than Car B.

Inference:

The only way to satisfy the second hint is When car F travelled on Wednesday and accordingly car A travelled on Sunday.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	
Monday	E	D
Tuesday	B	
Wednesday	F	
Thursday	G	B
Friday	D	G
Saturday	C	E

Reference:

- Car C did not travel the highest distance.
- Car C travelled a distance more than Car A.

Inference:

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	
Monday	E	D
Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

So, the only left out place is filled by the only left car i.e. Car F.

Thus the final arrangement is completed.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	F
Monday	E	D
Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

38) If the third highest distance run by a car is 80km, then which of the following cars have run more than 80 km?

- a) G
- b) D
- c) A
- d) E

Correct Choice: b

Explanation:

In the given case, only Car D is the one that has run second highest distance, thus the distance must definitely be more than 80km.

Hence option B is correct.

Final Arrangement:

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	F
Monday	E	D

Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

Common Explanation:

Reference:

Seven cars from A to G of a tour & travel company travelled certain distances during seven days of a week starting from Sunday.

Only one car travelled on one particular day.

No two cars travelled same distance.

Inference:

We will keep these hints in mind while solving the puzzle, specially the second hint.

Reference:

- Car E travelled the lowest distance on Monday.
- Car D travelled a distance more than that of car B on Friday.
- Car C travelled immediately after Car D, which travelled the second highest distance.

Inference:

With the given hints following table can be prepared.

We will make a mental note of information that Car D travelled a distance more than that of Car B.

Note- The descending order of distance travelled by each car is indifferent of the days.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)

Sunday		
Monday	E	D
Tuesday		
Wednesday		
Thursday		
Friday	D	
Saturday	C	E

Reference:

- Car B travelled before Car C, a distance more than only two cars.
- Car F travelled at a gap of two days from Car A, which travelled before Car F.
- Car G travelled immediately after Car F but travelled less than Car B.

Inference:

The only way to satisfy the second hint is When car F travelled on Wednesday and accordingly car A travelled on Sunday.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	
Monday	E	D
Tuesday	B	
Wednesday	F	
Thursday	G	B
Friday	D	G
Saturday	C	E

Reference:

- Car C did not travel the highest distance.

- Car C travelled a distance more than Car A.

Inference:

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	
Monday	E	D
Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

So, the only left out place is filled by the only left car i.e. Car F.

Thus the final arrangement is completed.

Days	Cars (in order of their day of travel)	Cars (Descending order of distance travelled)
Sunday	A	F
Monday	E	D
Tuesday	B	C
Wednesday	F	A
Thursday	G	B
Friday	D	G
Saturday	C	E

Topic – North – South Sitting Arrangement

(39-43) Directions: Study the following information carefully and answer the question given below.

Eight people are sitting in two parallel rows containing four people each, in such a way that there is an equal distance between adjacent persons. In row 1- L, M, N and O are seated and all of them are facing south. In row 2- T, U, V and W are seated and all of them are facing north. Therefore in the given seating arrangement each member seated in a row faces another member of the other row. V is sitting second to the left of person who faces L. W is an immediate neighbor of V. Only one person is sitting between L and O. The immediate neighbour of N is facing U. M is not sitting at any of the extreme end of the line.

39) Which of the following statements is true regarding M?

- a) L and N are immediate neighbors of M.
- b) M is sitting immediate left of O.
- c) U is facing M.
- d) M is sitting fourth to the right of one of the extreme ends.

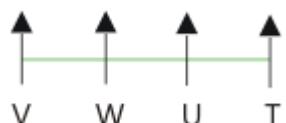
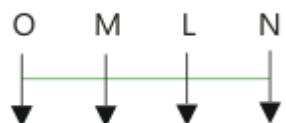
Correct Choice: b

Explanation:

Following the final seating arrangement, we can say that M is sitting immediate left of O.

Case-I

South



North

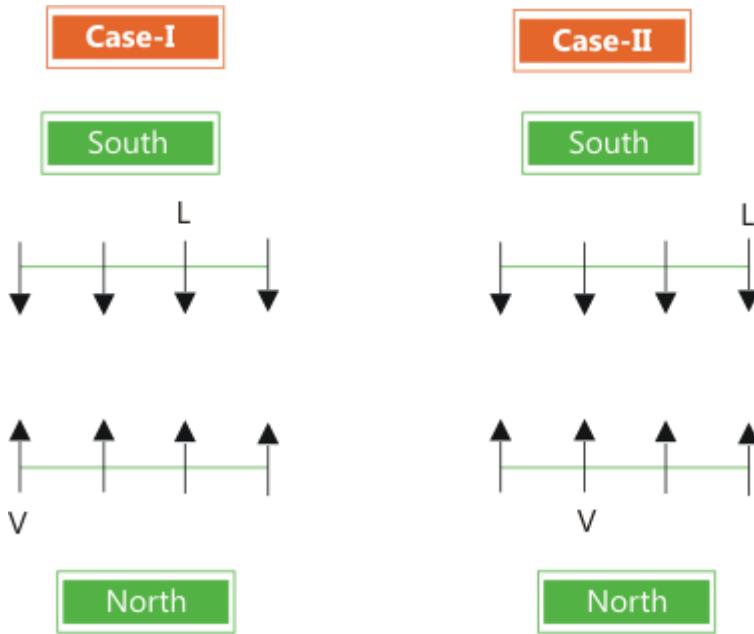
Hence, the correct answer is option B.

Common Explanation:

Reference:

V is sitting second to the left of person who faces L.

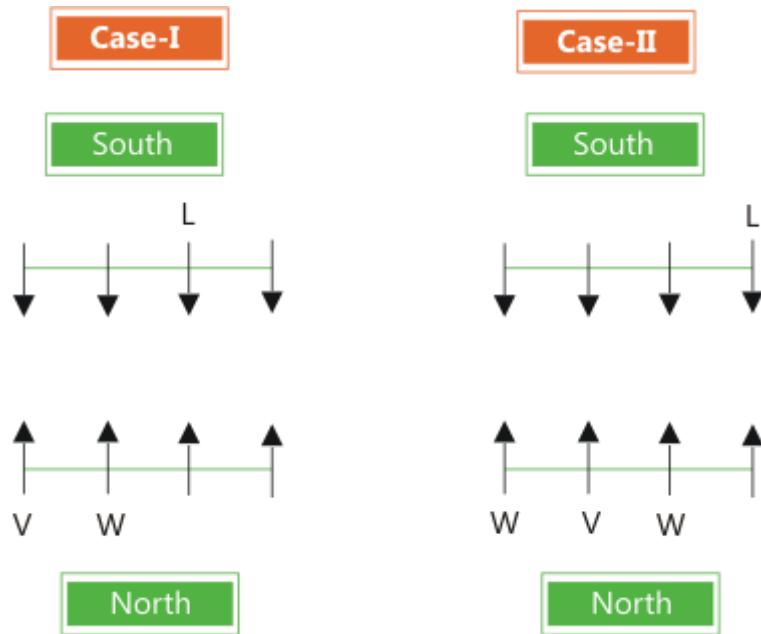
Note: From the above reference, we can say that case 1 and case 2 are possible, in case 1 V will be sitting at extreme left end of the row and L will be sitting at immediate right of extreme left end. In case 2, V will be sitting at immediate right of extreme left end of the row and L will be sitting at extreme left end.



Reference:

W is an immediate neighbor of V.

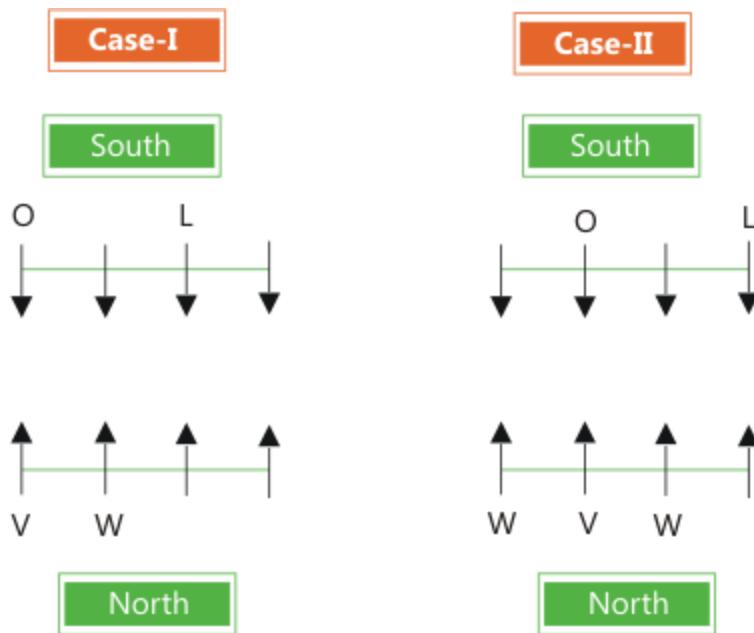
Note: In case 1, W will be sitting at immediate right of V and in case 2, W will be sitting at either immediate left of V or Immediate right of V.



Reference:

Only one person is sitting between L and O.

Note: From the above reference, in case 1, O will be sitting at extreme right end and in case 2, O will be sitting at immediate left of extreme right end.



References:

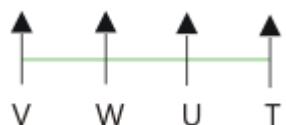
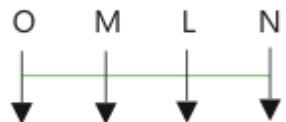
The immediate neighbour of N is facing U.

M is not sitting sit at any of the extreme end of the line.

Note: Here case 2 fails. Now we can go with case 1 here, as immediate neighbor of N is L and L will be facing U. M is not sitting at any of the extreme end of the line, so it will be sitting between O and L.

Case-I

South



North

40) Who among the following is facing N?

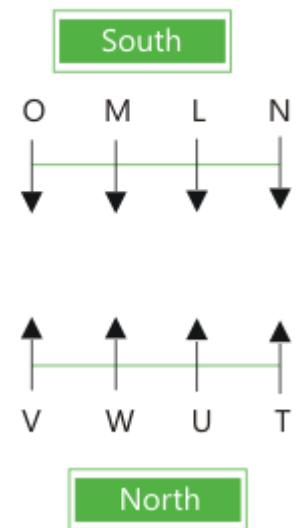
- a) T
- b) W
- c) U
- d) V

Correct Choice: a

Explanation:

Following the final seating arrangement, we can say that T is facing N.

Case-I



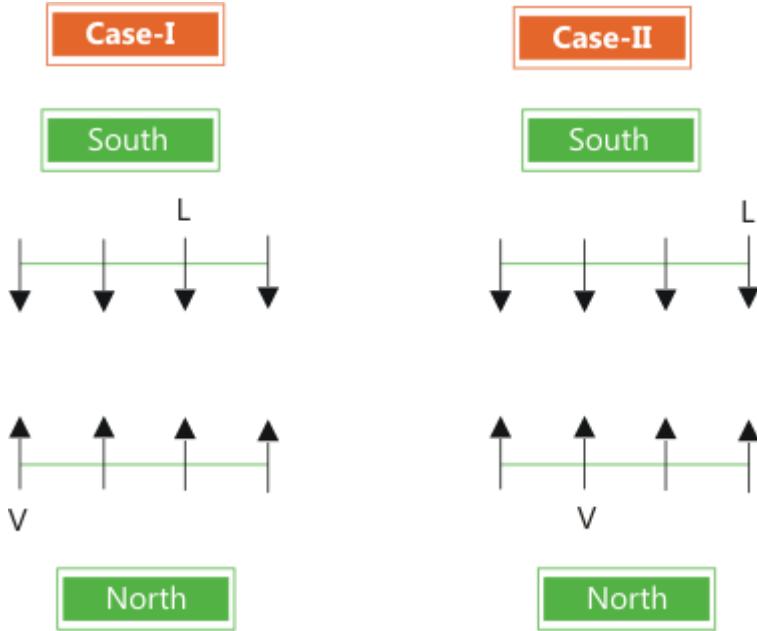
Hence, the correct answer is option A.

Common Explanation:

Reference:

V is sitting second to the left of person who faces L.

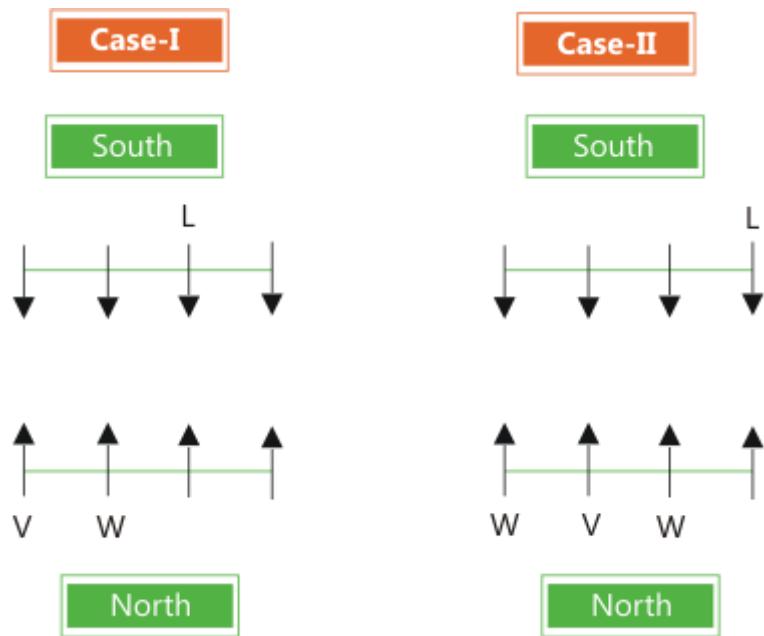
Note: From the above reference, we can say that case 1 and case 2 are possible, in case 1 V will be sitting at extreme left end of the row and L will be sitting at immediate right of extreme left end. In case 2, V will be sitting at immediate right of extreme left end of the row and L will be sitting at extreme left end.



Reference:

W is an immediate neighbor of V.

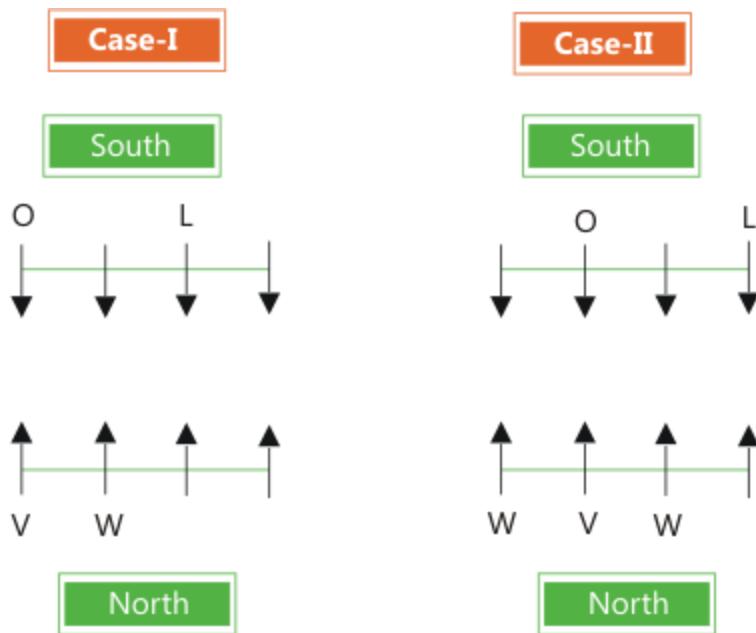
Note: In case 1, W will be sitting at immediate right of V and in case 2, W will be sitting at either immediate left of V or Immediate right of V.



Reference:

Only one person is sitting between L and O.

Note: From the above reference, in case 1, O will be sitting at extreme right end and in case 2, O will be sitting at immediate left of extreme right end.



References:

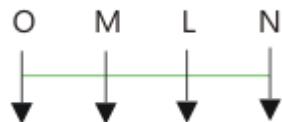
The immediate neighbour of N is facing U.

M is not sitting sit at any of the extreme end of the line.

Note: Here case 2 fails. Now we can go with case 1 here, as immediate neighbor of N is L and L will be facing U. M is not sitting at any of the extreme end of the line, so it will be sitting between O and L.

Case-I

South



North

41) Who among the following is sitting second to left of O?

- a) M
- b) L
- c) N
- d) Cannot be determined

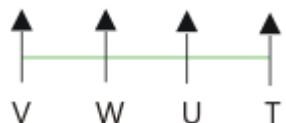
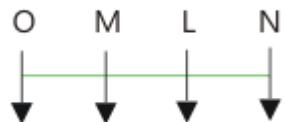
Correct Choice: b

Explanation:

Following the final seating arrangement, we can say that L is sitting second to left of O.

Case-I

South



North

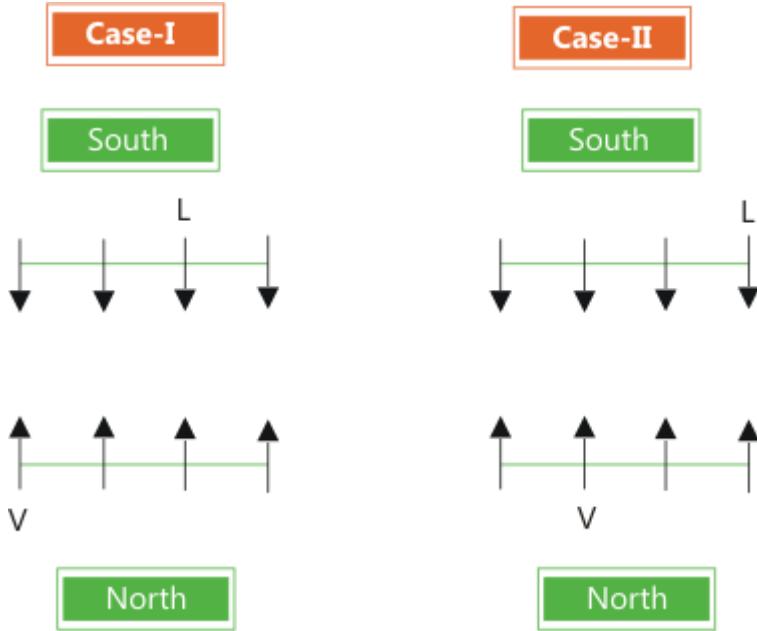
Hence, the correct answer is option B.

Common Explanation:

Reference:

V is sitting second to the left of person who faces L.

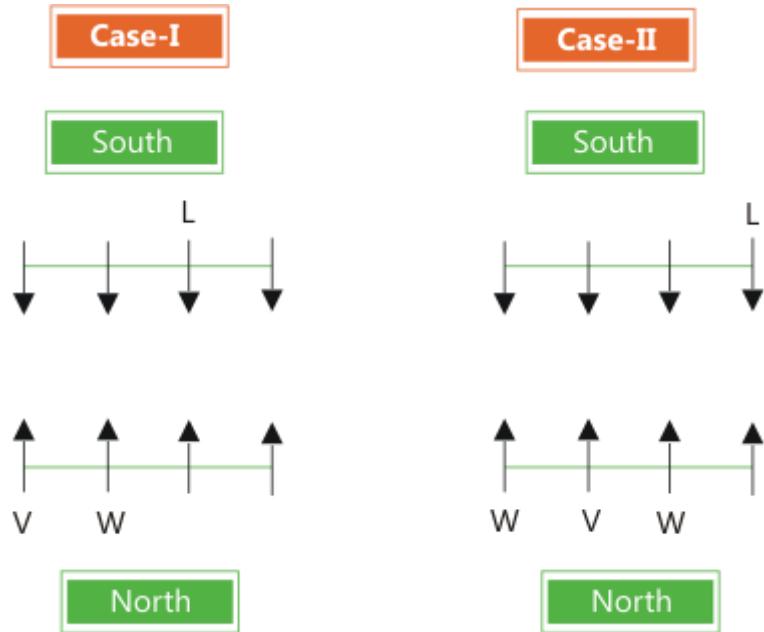
Note: From the above reference, we can say that case 1 and case 2 are possible, in case 1 V will be sitting at extreme left end of the row and L will be sitting at immediate right of extreme left end. In case 2, V will be sitting at immediate right of extreme left end of the row and L will be sitting at extreme left end.



Reference:

W is an immediate neighbor of V.

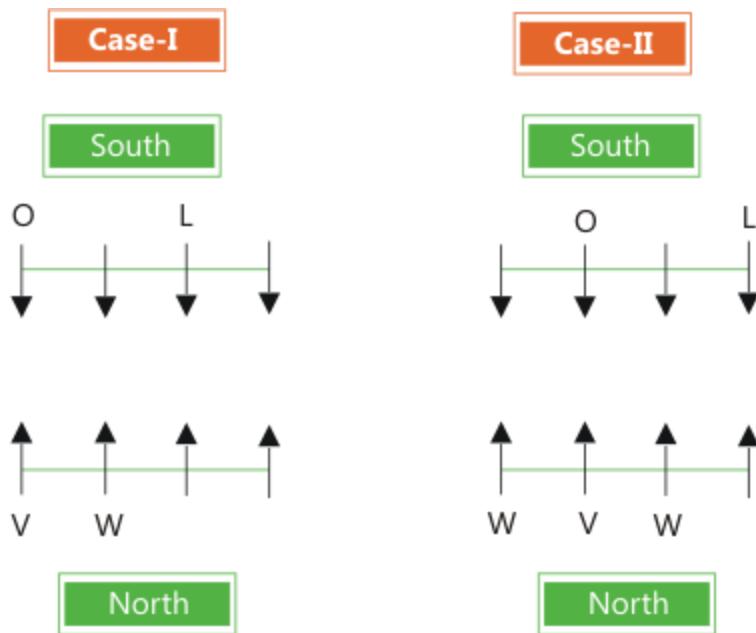
Note: In case 1, W will be sitting at immediate right of V and in case 2, W will be sitting at either immediate left of V or Immediate right of V.



Reference:

Only one person is sitting between L and O.

Note: From the above reference, in case 1, O will be sitting at extreme right end and in case 2, O will be sitting at immediate left of extreme right end.



References:

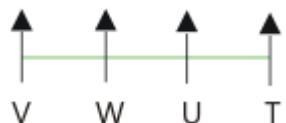
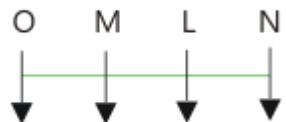
The immediate neighbour of N is facing U.

M is not sitting sit at any of the extreme end of the line.

Note: Here case 2 fails. Now we can go with case 1 here, as immediate neighbor of N is L and L will be facing U. M is not sitting at any of the extreme end of the line, so it will be sitting between O and L.

Case-I

South



North

42) Who amongst the following is sitting second to the right of the person who faces O?

- a) T
- b) U
- c) W
- d) V

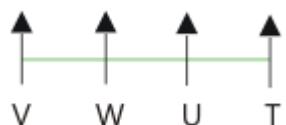
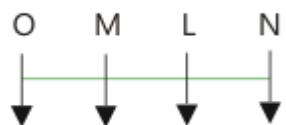
Correct Choice: b

Explanation:

Following the final seating arrangement, we can say that U is sitting second to the right of person who faces O.

Case-I

South



North

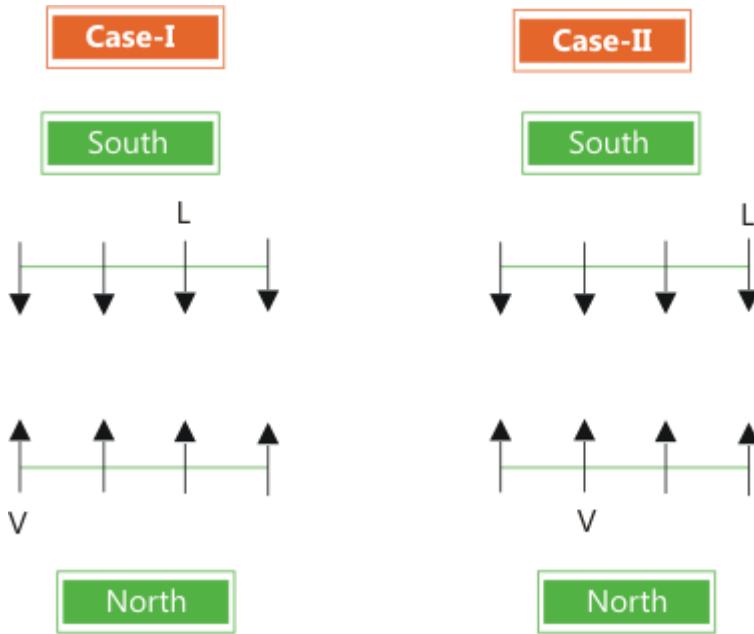
Hence, the correct answer is option B.

Common Explanation:

Reference:

V is sitting second to the left of person who faces L.

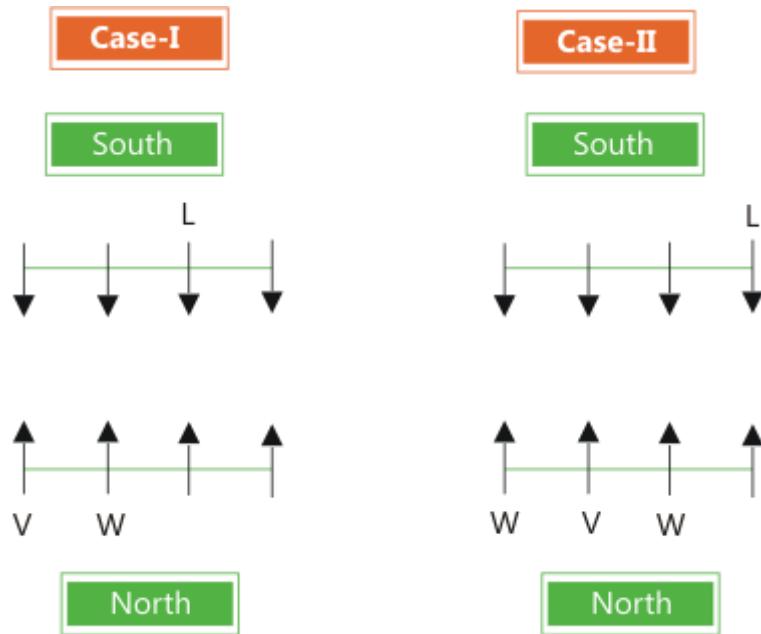
Note: From the above reference, we can say that case 1 and case 2 are possible, in case 1 V will be sitting at extreme left end of the row and L will be sitting at immediate right of extreme left end. In case 2, V will be sitting at immediate right of extreme left end of the row and L will be sitting at extreme left end.



Reference:

W is an immediate neighbor of V.

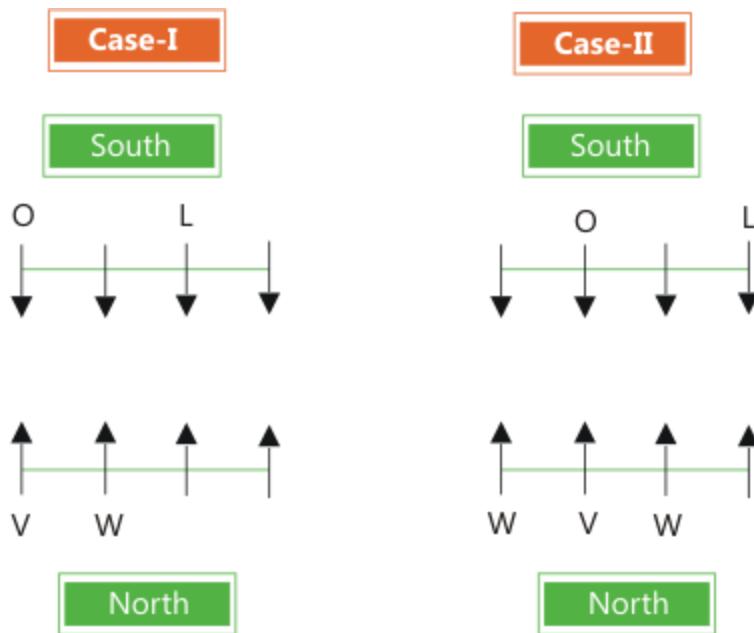
Note: In case 1, W will be sitting at immediate right of V and in case 2, W will be sitting at either immediate left of V or Immediate right of V.



Reference:

Only one person is sitting between L and O.

Note: From the above reference, in case 1, O will be sitting at extreme right end and in case 2, O will be sitting at immediate left of extreme right end.



References:

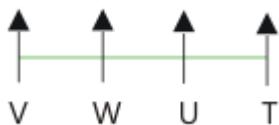
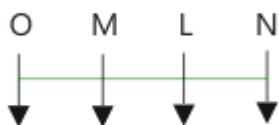
The immediate neighbour of N is facing U.

M is not sitting sit at any of the extreme end of the line.

Note: Here case 2 fails. Now we can go with case 1 here, as immediate neighbor of N is L and L will be facing U. M is not sitting at any of the extreme end of the line, so it will be sitting between O and L.

Case-I

South



North

43) Four of the following five pairs are alike in certain way and thus form a group. Which is the one that does not belong to that group?

- a) V, W
- b) U, T
- c) M, O
- d) M, L

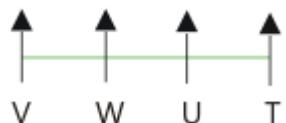
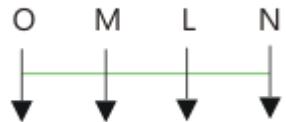
Correct Choice: d

Explanation:

Following the final seating arrangement, we can say that in option E first person is immediate right of the second person and in other options first person is sitting immediate left of second person.

Case-I

South



North

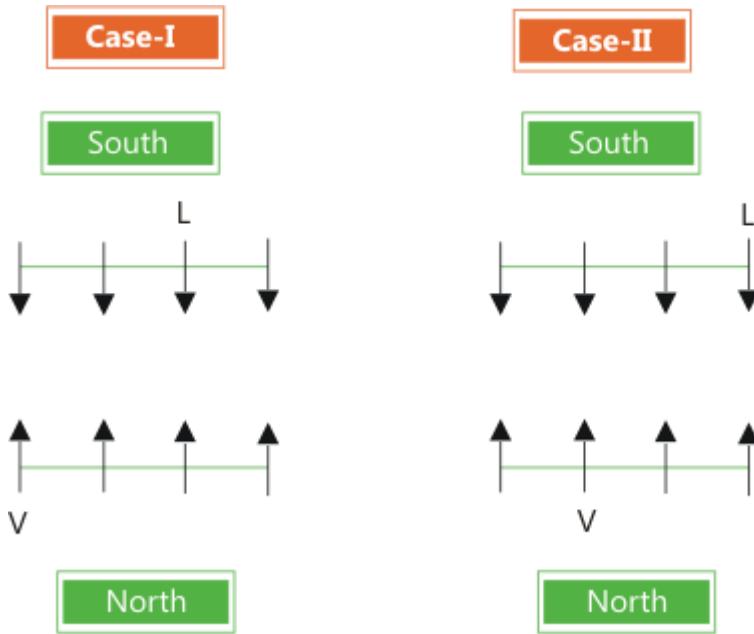
Hence, the correct answer is option D.

Common Explanation:

Reference:

V is sitting second to the left of person who faces L.

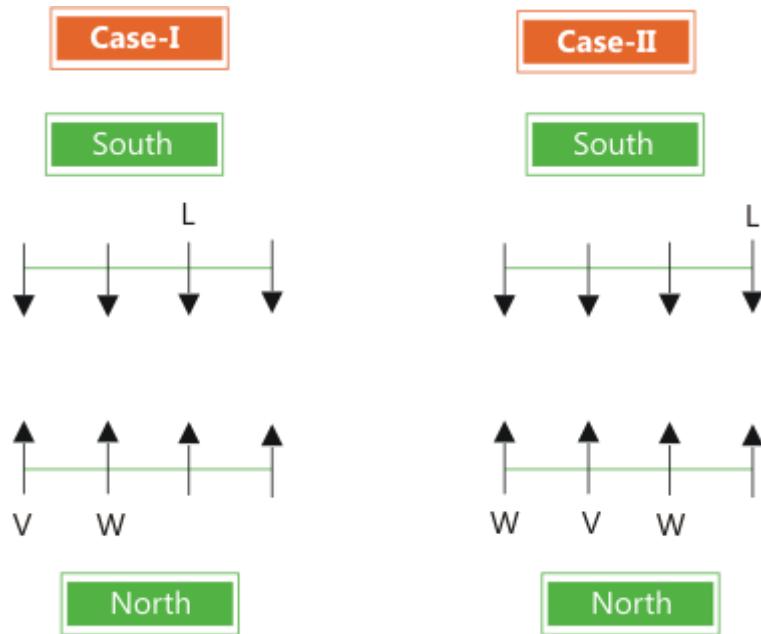
Note: From the above reference, we can say that case 1 and case 2 are possible, in case 1 V will be sitting at extreme left end of the row and L will be sitting at immediate right of extreme left end. In case 2, V will be sitting at immediate right of extreme left end of the row and L will be sitting at extreme left end.



Reference:

W is an immediate neighbor of V.

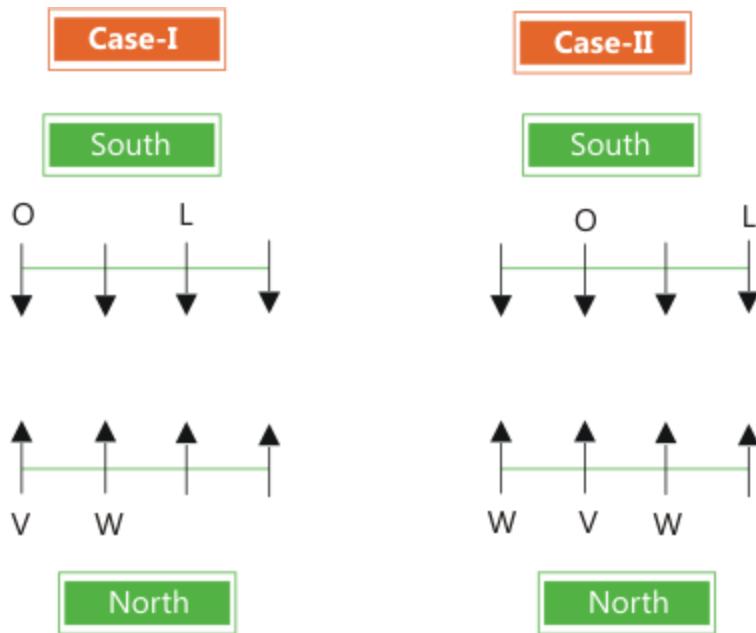
Note: In case 1, W will be sitting at immediate right of V and in case 2, W will be sitting at either immediate left of V or Immediate right of V.



Reference:

Only one person is sitting between L and O.

Note: From the above reference, in case 1, O will be sitting at extreme right end and in case 2, O will be sitting at immediate left of extreme right end.



References:

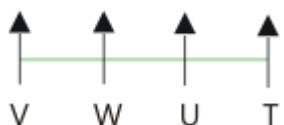
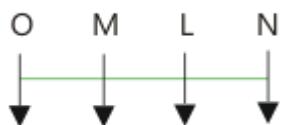
The immediate neighbour of N is facing U.

M is not sitting sit at any of the extreme end of the line.

Note: Here case 2 fails. Now we can go with case 1 here, as immediate neighbor of N is L and L will be facing U. M is not sitting at any of the extreme end of the line, so it will be sitting between O and L.

Case-I

South



North

Topic – Inserting the Missing Number

44) Select the missing number from the below options.

7	12	9
5	6	4
24	108	?

- a) 56
- b) 45
- c) 65
- d) 75

Correct Choice: c

Explanation:

While following the table columnwise, we get

$$7^2 - 5^2 = 49 - 25 = 24,$$

$$12^2 - 6^2 = 144 - 36 = 108,$$

Similarly,

$$9^2 - 4^2 = 81 - 16 = 65.$$

Hence, option C is correct.

Topic – Odd Man Out

45) Three of the following four letter cluster are alike in a certain way and one is different. Select the odd one out.

- a) NQOP
- b) IOMK
- c) EHFG
- d) VSQR

Correct Choice: b

Explanation:

From above options the NQOP, EHFG, VSQR follows the common pattern:
As you can see below,

NQOP follows:

According to place value of N 3 step increased as per alphabetic order we get Q,

After Q 2 step decreased in place value as per alphabetic order is done we get O,

After O 1 step increased in place value as per alphabetic order is done we get P,

Same combination follows but EHFG, VSQR.

Whereas IOMK does not follow it,

Hence, option B is correct.

Topic – Missing Number Series

46) Which number will replace the question mark (?) in the following series?

124, ?, 143, 154, 166, 179

- a) 134
- b) 144
- c) 137
- d) 133

Correct Choice: d

Explanation:

The above series follows the combination,

$$\begin{aligned}124 + 9 &= 133, \\133 + 10 &= 143, \\143 + 11 &= 154, \\154 + 12 &= 166, \\166 + 13 &= 179.\end{aligned}$$

Hence, option D is correct.

Topic – Alphabet Series

47) Select the combination of when sequentially placed in the given letter series will complete the series.

db_c_b_bacc_d_accb.

- a) accdd
- b) caddd
- c) acdbo
- d) babad

Correct Choice: c

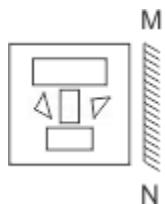
Explanation:

The above series follows the combination dba/ccb/dba/ccb/dba/ccb.

Hence, option C is correct.

Topic – Mirror Image

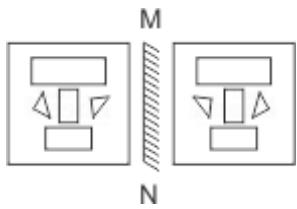
48) Directions: A mirror is placed on the line MN, and then which of the answer figures is the right image of the given question figure?



- M
- N
- a)
- b)
- c)
- d)

Correct Choice: d

Explanation:



Hence, option D is correct.

Topic – Classification of Words

49) Three of the following four words pair are alike in a certain way and one is different. Pick the odd words pair out.

- a) Tamil : Telangana
- b) English : United kingdom
- c) Dutch : Netherlands
- d) Arabic : Egypt

Correct Choice: a

Explanation:

English is the language spoken in country United Kingdom,

Arabic is the language spoken in country Egypt,

Dutch is the language spoken in Netherland.

Hence, option A is correct.

Topic – Syllogisms

50) Directions: In each of the questions given below three statements are followed by three conclusions numbered I, II and III. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read the entire conclusion and then decided which of the given conclusions logically follows from the given statements, disregarding commonly known facts. Give answer.

Statements:

Some schools are colleges.

All institutes are colleges.

Some houses are schools.

Conclusions:

- I. At least some houses are colleges.
 - II. At least some colleges are institutes.
 - III. All institutes are house.
-
- a) Only I follows
 - b) Only II and III follow
 - c) Only I and II follow
 - d) Only II follows

Correct Choice: d

Explanation:

Some houses are schools (I) + Some schools are colleges (I) = I + I = No conclusion can be derived between the classes of 'Houses' and 'Colleges'. Hence, neither conclusion I nor conclusion III follows.

All institutes are colleges (A) – conversion – Some colleges are institutes (I). Hence, only conclusion II follows.

Hence, option D is correct.

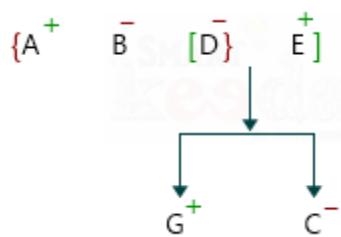
Topic – Blood Relations

51) B is the sister of D, C is the daughter of D, E is the father of C, A is the brother of B, G is the only son of D. How is A related to G?

- a) Uncle
- b) Father
- c) Cousin
- d) Father- in- law

Correct Choice: a

Explanation:



It's evident from the above figure that A is **uncle** of G.

Hence, option A is correct.

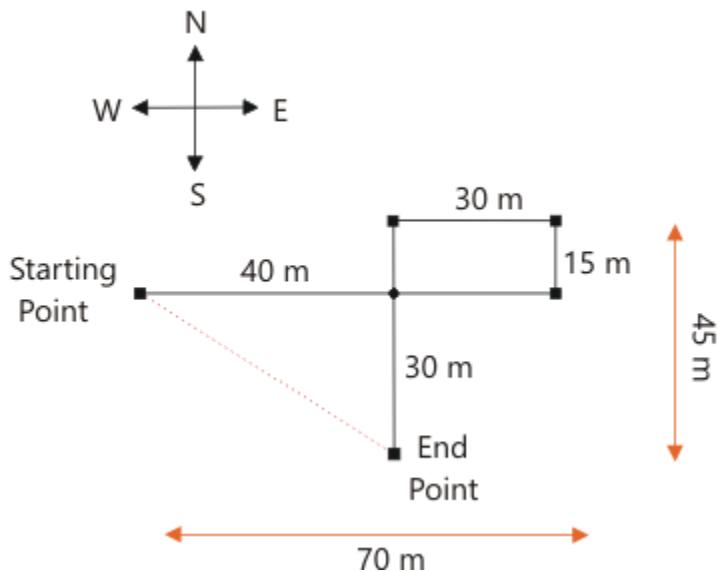
Topic – Distance & Direction

52) A student is looking for his exam center. He moved 70 meters in the east before turning to his left. He moved 15 meters before turning to his left again to look for his exam center but reached his friend's place instead, which is 30 meter from this point. He did not find the exam center there too. From there, he moved 45 meters to the south before reaching to his exam center. What is the straight distance between the exam center and his starting point?

- a) 60 metres
- b) 70 metres
- c) 50 metres
- d) 40 metres

Correct Choice: c

Explanation:



Straight distance between starting point and exam center

$$= 40^2 + 30^2 = 1600 + 900 = 2500 = 50$$

Hence, the distance between starting point and exam center is 50 m.

Hence, option C is correct.

Topic – Logical Venn Diagrams Type -1

53) Which of the following figures best depicts the relationship between thieves, judges and criminals?

- a)
- b)
- c)
- d)

Correct Choice:b

Explanation:

As thieves and criminals belong to one community and judges from another.



Hence option (B) is correct.

Topic – Arithmetical Reasoning

54) The average age of 12 players in a cricket team is the same as it was 18 months ago because an old player has been replaced by a young player now. Find the difference in the age of the older and the younger player.

- a) 21.6
- b) 24
- c) 18
- d) 12

Correct Choice: c

Explanation:

$$18 \text{ months} = 1.5 \text{ years}$$

Let the sum of the ages of the 12 players, 1.5 years back, be $12x$.

\therefore The sum of their ages now (had the old player still been in the team) would have been $12x + (12 \times 1.5) = 12x + 18$

However, the sum of the ages now = sum of the ages 18 months back = $12x$

\therefore (Sum of the ages with the old player still in the team) - (Sum of the ages with the new player in the team) = difference between the age of the two players

$$= 12x + 18 - 12x = 18$$

Hence, option C is correct.

Numerical Ability

Topic - Probability

55) A bag contains 6 Red, 5 Blue and 4 Green balls. If two balls are drawn at random what is the probability that both are of same color?

a) $\frac{2}{3}$

b) $\frac{31}{105}$

c) $\frac{13}{21}$

d) $\frac{37}{105}$

Correct Choice: b

Explanation:

Both are either red, blue or green

$$P = \frac{^5C_2 + ^6C_2 + ^4C_2}{^{15}C_2}$$

$$P = \frac{31}{105}$$

Hence, option B is correct.

Topic – Permutations & Combinations

56) A family of a man, wife and their daughter is to be seated with three other bachelors on a round table with six chairs such that the daughter always sits adjacent to at least one of her parents. How many such arrangements are possible?

- a) 75
- b) 60
- c) 72
- d) 84

Correct Choice:d

Explanation:

Total possible arrangements = 5!

Now we calculate the arrangements in which no parent sits adjacent to the daughter

First we seat the daughter, now we seat two out of three bachelors on either side of her seat.

$$\text{Ways} = {}^3C_2 \times 2!$$

Now rest three can be arranged in $3!$ Ways

Total ways in which daughter doesn't sit adjacent to her parents = ${}^3C_2 \times 2! \times 3! = 36$

Ways in which daughter sits adjacent to at least one parent = $5! - 36 = 84$

Hence, option D is correct.

Topic – Profit & Loss

57) For A and B the ratio of cost price is 4 : 5 and ratio of selling price is 4 : 7. The ratio of total cost price and total selling price is 45 : 44 and the net loss is Rs 20. What is the difference between their selling prices?

- a) Rs. 300
- b) Rs. 240
- c) Rs. 360
- d) Rs. 250

Correct Choice: b

Explanation:

Let the CP of A = $4x$ and B = $5x$ and SP of A = $4y$ and B = $7y$

$$\frac{\text{Total SP}}{\text{Total CP}} = \frac{44}{45}$$

$$\frac{11y}{9x} = \frac{44}{45}$$

$$\frac{y}{x} = \frac{4}{5}$$

$$9x - 11y = 20$$

Solving the above equations we get,

$$x = 100 \text{ and } y = 80$$

Difference between their SP = $7y - 4y = 3y = 3 \times 80 = \text{Rs } 240$

Hence, option B is correct.

Topic – Simple Interest – Compound Interest

58) A person has Rs. 40000 out of which he puts Rs. 12000 at 10% SI for 3 years and Rs 16000 at 12.5% CI for 2 years and keeps the rest with himself. What is the total amount with him after three years?

- a) Rs. 52240
- b) Rs. 35850
- c) Rs. 42650
- d) Rs. 47850

Correct Choice: d

Explanation:

Amount left with him = $40000 - 16000 - 12000 = 12000$

Amount after 3 years

$$= 12000 + 12000 \left(1 + 3 \times \frac{10}{100}\right) + 16000 \left(1 + \frac{1}{8}\right)^2 = \text{Rs. } 47850$$

Hence, option D is correct.

Topic – Time & Distance

59) A can beat B by 160 m in a 1000 m race. When A and B run towards each other from the opposite ends of track XY, the difference between the distance travelled by them when they meet is 48 m. What is the length (in meter) of the track?

- a) 552
- b) 664
- c) 564
- d) 658

Correct Choice: a

Explanation:

$$\text{Ratio of speed } \frac{A}{B} = \frac{1000}{840} = \frac{25}{21}$$

Let the length of track be X

Difference between distance travelled by them

$$= \frac{(25 - 21) \times X}{25 + 21} = \frac{4X}{46}$$

$$\frac{4X}{46} = 48$$

$$X = 552 \text{ m}$$

Hence, option A is correct.

Topic – Percentages

60) A and B are two candidates in an election and a voter can vote for either A or B. Candidate A gets 66.67% of the votes got by candidate B. If only 90% of eligible voters cast their vote and B gets 64800 more votes than A, how many eligible voters were there?

- a) 326000
- b) 360000
- c) 420000
- d) 540000

Correct Choice: b

Explanation:

Let the total eligible voters = 100k

Votes cast = 90k

Ratio of votes got, $\frac{A}{B} = \frac{2}{3}$

Difference between the votes of A and B = $\frac{1 \times 90k}{5} = 18 k$

$18k = 64800$

So $100k = 360000$

Hence, option B is correct.

Topic – Time & Work

61) A, B and C can complete a work in 20, 30 and 25 days respectively. A and B work together for 8 days and C joins them on every second day, then D alone works for two days and the remaining work is done by C alone in 1 day. In how many days D alone can complete 80% of the work?

- a) 16 days
- b) 15 days
- c) 18 days
- d) 12 days

Correct Choice: d

Explanation:

Let the total work = 300k

$$\text{Efficiency of A} = \frac{300k}{20} = 15k,$$

$$B = \frac{300k}{30} = 10k$$

$$\text{and } C = \frac{300k}{25} = 12k$$

Let efficiency of D = Z

Work done by A and B = $15k + 10k = 25k$

Work done by A, B and C = $15k + 10k + 12k = 37k$

Work done in 8 days (by A and B joined by C on every second day)

$$= \frac{8}{2} \times (25 + 37) = 248k$$

Work done by C alone in 1 day = $12k$

Work done by D in 2 days = $300k - 248k - 12k = 40k$

Per day work of D = $20k$

Time taken by D to do 80% of work

$$= \frac{8}{10} \times \frac{300}{20} = 12 \text{ days}$$

Hence, option d is correct.

Topic – Pipes & Cisterns

62) Pipe A and B can fill a tank in 16 hrs and 32 hrs respectively while C alone can empty it in 20 hrs. When the tank is empty Pipe A and B are opened, ‘2x’ hrs later A is closed and C is opened, ‘x’ hrs later B is closed and A is opened and ‘6x + 2’ hrs later tank is full. What is the total time(in hrs) taken to fill the tank?

- a) 38
- b) 22
- c) 42
- d) 35

Correct Choice: a

Explanation:

Let tank capacity = 160k

$$\text{Efficiency of A} = \frac{160k}{16} = 10k,$$

$$B = \frac{160k}{32} = 5k \text{ and } C = \frac{160k}{20} = 8k$$

$$(10k + 5k) \times 2x + (5k - 8k) \times x + (10k - 8k) \times (6x + 2) = 160 k$$

$$x = 4$$

$$\text{Total time} = 2x + x + 6x + 2 = 9x + 2 = 38 \text{ hrs}$$

Hence, option A is correct.

Topic – Volumes

63) A tent has a cylindrical base and conical top. The height of tent is 61m and that of cylindrical portion is 40m the radius of tent is 28 m. What is the total area of cloth required to make the tent?

- a) 10450 m²
- b) 12540 m²
- c) 10120 m²
- d) 9750 m²

Correct Choice: c

Explanation:

Height of the cone = $61 - 40 = 21$ m and radius of cone = 28 m

So, Slant height of cone = $\sqrt{(21^2 + 28^2)} = 35$ m

Total surface area = $2\pi rh + \pi rl$

$$= \frac{22}{7} \times 28 \times (2 \times 40 + 35) = 10120 \text{ m}^2$$

Hence, option C is correct.

Topic – Areas

64) A prism has a triangular base with sides 30cm, 34cm and 16cm. If the volume of the prism is 2960 cm², what is the height (in cm) of the prism?

- a) 14.5
- b) $12\frac{1}{3}$
- c) 15
- d) 9.5

Correct Choice: b

Explanation:

$$\text{As } 34^2 = 30^2 + 16^2$$

Area of the base of the prism

$$= \frac{1}{2} \times 30 \times 16 = 240 \text{ cm}^2$$

$$\text{Volume of the prism} = 240 \times h = 2960$$

$$H = \frac{2960}{240} = 12\frac{1}{3} \text{ cm}$$

Hence, option B is correct.

Topic – Averages

65) The average weight of a class of N students is 47kg. If 8 students with average weight of 53kg leave the class and 3 new students with average weight 56kg join the class, the average weight of the class decreases by 0.6kg. What is the number of students in class now?

- a) 40
- b) 42
- c) 37
- d) 35

Correct Choice: d

Explanation:

$$\text{Total weight initially} = N \times 47$$

$$\text{Total weight of class now} = (N - 8 + 3) \times (47 - 0.6) = (N - 5)46.4$$

$$N \times 47 - 8 \times 53 + 3 \times 56 = (N - 5) \times (46.4)$$

$$N = 40$$

$$\text{Number of students in the class now} = N - 5$$

$$= 40 - 5 = 35$$

Hence, option D is correct.

Topic – Geometry (Triangles)

66) A triangle has sides 39 cm, 80 cm and 89 cm, what is circumference (in cm) of its incircle?

- a) 15π
- b) 30π
- c) 64π
- d) 24π

Correct Choice: b

Explanation:

As we can see, $39^2 + 80^2 = 89^2$

So, area of triangle = $\frac{1}{2} \times 39 \times 80 = 1560 \text{ cm}^2$

Perimeter of triangle = $(39 + 80 + 89) = 208 \text{ cm}$

Semi perimeter, $s = \frac{208}{2} = 104 \text{ cm}$

Inradius = $\frac{A}{s} = \frac{1560}{104} = 15$

Circumference = $2\pi r = 2\pi (15) = 30\pi$

Hence, option B is correct.

Topic – Percentages

67) In a class, 37.5% of the students are Girls and rest are boys. If 60% of the girls are present and 80% of the boys are present, then what percent of the total number of students in the class are absent?

- a) 32.5%
- b) 28.6%
- c) 27.5%
- d) 31.5%

Correct Choice: c

Explanation:

Let the total number of students = 80k

Girls = 37.5% (80k) = 30k and Boys = 50k

Girls absent = 40%(30k) = 12k

Boys absent = 20%(50k) = 10k

Total students absent = 10k + 12k = 22k

$$\text{Reqd. \%} = \frac{22k}{80k} \times 100 = 27.5\%$$

Hence, option C is correct.

Topic – Problems on Numbers

68) When a two-digit number is multiplied by the sum of its digits, the product is 913. When the number obtained by interchanging its digits is multiplied by the sum of the digits, the result is 418. The difference of the digits of the given number is:

- a) 4
- b) 6
- c) 7
- d) 5

Correct Choice: d

Explanation:

Let the number be ab, numerical value = $10a + b$

$$(10a + b)(a + b) = 913 \text{ ----- (1)}$$

When the digits are interchanged number = ba = $10b + a$

$$(10b + a)(a + b) = 418 \text{ ----- (2)}$$

By doing 1 – 2

$$(a + b)(9a - 9b) = 913 - 418$$

$$(a - b)(a + b) = \frac{495}{9}$$

$$(a + b)(a - b) = 55$$

$$a + b = 11 \text{ and } a - b = 5$$

Required difference = 5

Hence, option D is correct.

Topic – Partnership

69) A, B and C start a business. A invest 40% more than C, who invests 66.67% more than B. If the total profit at the end of the year is Rs.244500, what is the share (in Rs.) of A in the profit?

- a) 124500
- b) 114100
- c) 142625
- d) 130400

Correct Choice: b

Explanation:

$$\frac{A}{C} = \frac{140}{100} = \frac{7}{5}$$

$$\frac{C}{B} = \frac{5}{3}$$

$$A : B : C = 7 : 3 : 5$$

Let the profit share of A = 7k, B = 3k and C = 5k

Total profit = 15k

$$\text{Profit share of A} = \frac{7k}{15k} \times 244500$$

$$= \text{Rs. } 114100$$

Hence, option B is correct

Topic – HCF & LCM of Numbers

70) The HCF of two numbers is 35 and their LCM is 299 times the HCF. If one of the numbers lies between 400 and 500, the sum of the digits of the other number is :

- a) 13
- b) 15
- c) 14
- d) 17

Correct Choice : a

Explanation:

Let the numbers be $35a$ and $35b$

$$\text{LCM} = 299 \times 35$$

$$\text{HCF} \times \text{LCM} = \text{Product of digits}$$

$$299 \times 35 \times 35 = 35a \times 35b$$

$$a \times b = 299$$

$$a \times b = 13 \times 23$$

$$a = 13 \text{ and } b = 23$$

$$35a = 455 \text{ and } 35b = 805$$

$35a$ lies between 400 and 500

$$\text{Sum of the digits odd } 805 = 8 + 0 + 5 = 13$$

Hence, option A is correct

Topic – Percentages

71) If 55% of a number is 224 more than 20% of the number, then 35% of the number is less than 62.5% of the number by:

- a) 164
- b) 166
- c) 182
- d) 176

Correct Choice: d

Explanation:

Let the number be $100k$

$$55\%(100k) - 20\%(100k) = 224$$

$$35k = 224$$

$$100k = 640$$

$$35\% (640) = 224$$

$$62.5\% (640) = 400$$

$$\text{Required difference} = 400 - 224 = 176$$

Hence, option D is correct.

Topic – Mixtures & Allegations

72) Alloy A contains copper and zinc in the ratio of 7 : 2 and alloy B contains copper and zinc in the ratio of 5 : 3. A and B are taken in the ratio of 6 : 5 and melted to form a new alloy. The percentage of copper in the new alloy is:

- a) 69.44%
- b) 70.83%
- c) 65.67%
- d) 72.45%

Correct Choice: b

Explanation:

$$\frac{\text{Copper}}{\text{Total in A}} = \frac{7}{9}$$

$$\frac{\text{Copper}}{\text{Total in alloy B}} = \frac{5}{8}$$

$$\frac{\text{Copper}}{\text{Total in the mixture}} = \frac{(6 \times 7/9 + 5 \times 5/8)}{(6 + 5)} = \frac{17}{24}$$

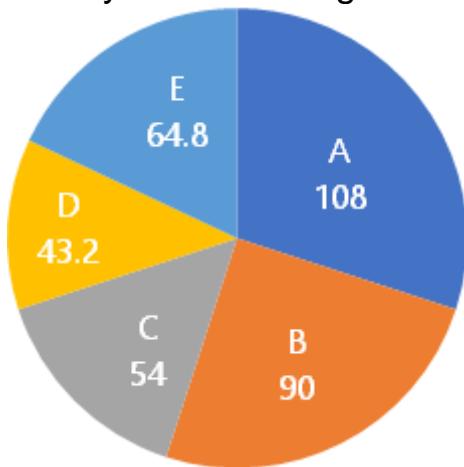
$$\text{Reqd. \%} = \frac{17}{24} \times 100 = 70.83\%$$

Hence, option B is correct.

Topic – Data Interpretation (Pie Chart on Degrees)

(73-75)Directions : Study the following pie chart carefully and answer the questions given beside.

The chart given below shows the breakup of mobile phones sold by five stores A, B, C, D and E in May. The values given are in degrees.



73) The total number of phones sold by E in May is 4500 and A sold 25% more phones in June as compared to May. What is the number of phones sold by A in June?

- a) 9325
- b) 9250
- c) 9375
- d) 9750

Correct Choice: c

Explanation:

Total number of phones sold by all five in May

$$= 4500 \times \frac{360^\circ}{64.8^\circ} = 25000$$

$$\text{Phones sold by A in May} = \frac{108^\circ}{360^\circ} \times (25000) = 7500$$

$$\text{Phones sold by A in June} = 125\% (7500) = 9375$$

Hence, option C is correct

74) B sells 20% more phones in June than in May and the phones sold by B in June is 25% of the total phones sold in that month. The phones sold in June are how much percent more than the phones sold in May?

- a) 12.5%
- b) 10%
- c) 25%
- d) 20%

Correct Choice: d

Explanation:

Let the phones sold in May = 100k

$$\text{So, phones sold by B} = \frac{90^\circ}{360^\circ} \times 100k = 25k$$

$$\text{Phones sold by B in June} = 25k \times 1.2 = 30k$$

$$\text{Total phones sold in June} = 30k \times \frac{100}{25} = 120k$$

$$\text{Reqd. \%} = \frac{120k - 100k}{100k} \times 100 = 20\%$$

Hence, option D is correct

75) The average number of mobile phones sold in May by C, D and E is 12600, what is the difference between the phones sold by A and B?

- a) 4300
- b) 6300
- c) 4200
- d) 4800

Correct Choice: c

Explanation:

Let the total phones sold in May = 100k

Average phones sold by C, D and E

$$= \frac{64.8^\circ + 43.2^\circ + 54^\circ}{3} = 54^\circ$$

Difference between the number of phones sold by A and B = $108^\circ - 90^\circ = 18^\circ$

54° corresponds to 12600

18° corresponds to 4200

Hence, option C is correct .

Topic – Problems on Ages

76) 6 years from now ratio of age of A and B will be 4 : 5 and the ratio of age of B and C, 4 years ago, was 7 : 8. If B is 5 years younger to C, what is the present average age of A and C?

- a) 42
- b) 35
- c) 37
- d) 39

Correct Choice: b

Explanation:

Let the age of A, 6 years from now = $4k$, so age of B 6 years from now = $5k$

Present age of B = $5k - 6$

Age of B 4 years ago = $5k - 10$

Ratio of age of B and C 4 years ago = 7 : 8

$$\text{So, age of C 4 years ago} = \frac{8(5k - 10)}{7}$$

$$\text{Present age of C} = \frac{8(5k - 10)}{7} + 4 = \frac{(40k - 52)}{7}$$

B is 5 years younger to C

$$5k - 6 + 5 = \frac{(40k - 52)}{7}$$

$$k = 9$$

Present age of A = $4 \times 9 - 6 = 30$,

$$C = \frac{(40 \times 9 - 52)}{7} = 44$$

Present average age of A and C = $\frac{(30 + 44)}{2} = 37$

Hence, option C is correct.

Topic – Ratios & Proportions

77) 6/11 employees of a company are males and the rest are females. If 11/18 of male employees and 4/9 of female employees are temporary and the total number of permanent employees is 322, then 13/21 of the total number of employees exceed the total number of female employees by:

- a) 114
- b) 98
- c) 124
- d) 118

Correct Choice: a

Explanation:

(Note: As we see fractions like 6/11, 11/18 and 4/9 we will assume the total number of employees to be 11 × 18k to avoid fractions)

Let the total number of employees be 198k

$$\text{Males} = \frac{6}{11} \times 198 = 108\text{k}$$

$$\text{Females} = 198\text{k} - 108\text{k} = 90\text{k}$$

$$\text{Temporary Male employees} = \frac{11}{18} \rightarrow \text{Permanent} = \frac{7}{18}$$

$$\text{Permanent male employees} = \frac{7}{18} \times 108 = 42k$$

$$\text{Temporary female employees} = \frac{4}{9} \rightarrow \text{Permanent} = \frac{5}{9}$$

$$\text{Permanent female employees} = \frac{5}{9} \times 90k = 50k$$

$$\text{Total permanent employees} = 50k + 42k = 92k$$

$$92k = 322$$

$$k = 3.5$$

$$\text{Total employees} = 198 \times 3.5 = 693$$

$$\text{Total female employees} = 90 \times 3.5 = 315$$

$$\frac{13}{21} \text{ of total employees} = \frac{13}{21} \times 693 = 429$$

$$\text{Required difference} = 429 - 315 = 114$$

Hence, option A is correct

Topic – Compound Interest

78) A loan has to be returned in two equal yearly installments each of Rs 36450. If the interest is compounded annually at the rate of 8% p.a., what is the total interest paid?

- a) Rs. 8400
- b) Rs. 7600
- c) Rs. 10816
- d) Rs. 7900

Correct Choice: d

Explanation:

Let the Principal be P

$$\left(\frac{P \times 108}{100} - 36450 \right) \times \frac{108}{100} = 36450$$

$$P = 36450 \left[\left(\frac{100}{108} \right) + \left(\frac{100}{108} \right)^2 \right]$$

$$P = 65000$$

$$\text{Interest paid} = 2 * 36450 - 65000 = \text{Rs. 7900}$$

Hence, option D is correct.

Topic – LCM & HCF of Numbers

79) What is the total number of factors of 8800?

- a) 27
- b) 54
- c) 36
- d) 18

Correct Choice: c

Explanation:

By prime factorization

$$8800 = 11^1 \times 2^5 \times 5^2$$

$$\text{Total number of factors} = (1 + 1)(5 + 1)(2 + 1) = 36$$

Hence, option C is correct.

Topic – Geometry

80) The graphs of the equations $3x + 2y - 27 = 0$ and $5x - 3y = 7$ intersect at $P(x_1, y_1)$ and the graph of the equation $3x - 2y - 18 = 0$ intersect the y-axis at $Q(x_2, y_2)$. What is the value of $(x_2 - x_1 + y_2 - y_1)$?

- a) - 12
- b) - 5
- c) - 2
- d) - 20

Correct Choice: d

Explanation:

$$3x + 2y - 27 = 0 \rightarrow 9x + 6y = 81 \quad \dots\dots\dots (1)$$

$$5x - 3y = 7 \rightarrow 10x - 6y = 14 \quad \dots\dots\dots (2)$$

Using 1 and 2 we get, $x_1 = 5$ and $y_1 = 6$

$$3x - 2y - 18 = 0$$

It intersects y-axis at point Q (x_2, y_2)

On y axis, $x = 0$

$$3 \times 0 - 2y - 18 = 0$$

$$y_2 = -9$$

$$(x_2 - x_1 + y_2 - y_1) = (0 - 5 - 9 - 6) = -20$$

Hence, option D is correct

TCS Ninja Numerical Ability Questions

Q1. What is the value of $(a + b + c)^2 : (a^3 + b^3 + c^3)$ if $(ab + bc + ca) = 131$, $(a^2 + b^2 + c^2) = 138$ and $abc = 280$?

- A. 15 : 43
- B. 18 : 41
- C. 20 : 49
- D. 17 : 434

Answer: C

Q2. By which of the following is 19541742 divisible?

- I. 11
- II. 9
- III. 12

- A. Both I and III
- B. Only III
- C. Both II and III
- D. Only I

Answer: D

Q3. Simplify

$$0.7 \times 0.7 \times 0.7 + 0.3 \times 0.3 \times 0.3 + 0.3 \times 0.7 \times 3$$

$$0.7 \times 0.7 + 0.3 \times 0.3 + 0.42$$

- A. 1
- B. 1/3
- C. -1/3
- D. 3

Answer: A

Q4. In an examination, 62% candidates passed in physics and 60% candidates passed in Mathematics. If 37% candidates passed in both these subjects, what percent of the candidates failed in both the subjects?

- A. 5%
- B. 20%
- C. 25%
- D. 15%

Answer: D

Q5. If price of petrol increases by 35% and Rajesh intends to spend only an additional 25% on petrol, by how much % will he reduce the quantity of petrol purchased?(Approx)

- A. 14%
- B. 9%
- C. 11%

D. 13%

Answer: C

Q6. If 20% apples from a cart are rotten and the remaining apples are sold at 20% discount, the seller gets 92% profit on the cost price of the whole cart. By what percent above the cost price has the seller marked up the apples?

A. 180%

B. 250%

C. 200%

D. 280%

Answer: C

Q7. Selling an item at $\frac{5}{6}$ th of its marked price results in a loss of 10%. What is the % of profit/loss, if a discount of 5% is offered on the marked price?

A. 2.6% loss

B. 2.6% profit

C. 3% profit

D. 3% loss

Answer: B

Q8. The simple interest earned on a sum of Rs. 3650 at some rate after 4 years is Rs. 584. Find the rate of interest (in p.a.)

A. 3.5%

B. 4.5%

C. 3%

D. 4%

Answer: D

Q9. If $a : b = 3 : 4$, $b : c = 2 : 3$, $c : d = 1 : 2$, find the value of $((a+b+c+d)/(b+d))^{1/2}$

A. 5 : 4

B. 4 : 5

C. 1 : 1

D. 2 : 3

Answer: A

Q10. Which of the following statements is true?

I) 27840 is divisible by 12

II) 7329753 is divisible by 9

A. Statement I is true, but II is not

B. Statement I is not true, but II is true

C. Both the statements are true

D. Both the statements are not true

Answer: C

Q11. What is the value of the following expression?

$$\left(3\frac{3}{4} \text{ of } 5\frac{1}{7} \div \frac{9}{7}\right) \times 3\frac{1}{3} \div \left(1\frac{3}{4} \times 2\frac{2}{3} \text{ of } \frac{6}{7} \div \frac{4}{5}\right)$$

- A. 10
- B. 12
- C. 8
- D. 9

Answer: A

Q12. A sum amounts to Rs. 16,000 at the end of three years and to Rs. 25,600 at the end of six years under compound interest (interest being compounded annually). Find the simple interest earned if the same sum is invested at 15% p.a. for two years.

- A. Rs. 3,000
- B. Rs. 4,000
- C. Rs. 3,500
- D. Rs. 4,500

Answer: A

Q13. A flask is filled with 20% acid. 49 ml of that solution is taken out and is replaced with 40% acid to make it a solution of 27% acid. Find the initial volume of the solution in the flask.

- A. 140 ml
- B. 175 ml
- C. 70 ml
- D. 105 ml

Answer: A

Q14. Disha and Patni entered into a partnership. Disha invested as much money as was earned by Patni a share from the profit. If the profit was Rs. 18,000 and the money invested by Disha was Rs. 3,000 more than Patni, What is the investment made by Disha if it is less than Rs. 5,000?

- A. Rs. 4,500
- B. Rs. 7,500
- C. Rs. 6,000
- D. Rs. 5,500

Answer: A

Q15. If the 9-digit number $807x6y9z8$ is divisible by 99, then the value of $(x + y + z)^{1/2}$ is _____

- A. 4
- B. $3\sqrt{3}$
- C. 6
- D. $\sqrt{5}$

Answer: A

Q16. Rahul and Sachin can complete a work in 60 days and 45 days respectively. Rahul starts working with 120% of his capacity and Sachin with 80% of his capacity. In how many days will they complete 75% of the work if they work together?

- A. 25.71
- B. 19.85
- C. 17.64
- D. 16.24

Answer: B

Q17. The ratio of the speed of a bus and a car is 2:5. The car covers a distance of 280 km in some time and the bus covers a distance of d km less in the same time. What is the distance covered by the bus?

- A. 132 km
- B. 168 km
- C. 112 km
- D. 144 km

Answer: C

Q18. A boat travels 12 km downstream and 6 km upstream in 3 hours. The same boat takes fifty percent extra time to cover 10 km downstream and 16 km upstream. If the same boat travels 20 km downstream and z km upstream in 4 hours, find z.

- A. 8 km
- B. 4.5 km
- C. 7.5 km
- D. 9 km

Answer: B

Q19. Ranjeet's present age is half of his brother Manjeet's age after 10 years. After 5 years, the ratio of ages of Manjeet and Ranjeet will be 7 : 5. Find Ranjeet's age 2 years ago.

- A. 25 yrs
- B. 20 yrs
- C. 15 yrs
- D. 18 yrs

Answer: D

Q20. A plane is cutting a cone parallel to the base in such a way that the radius of the new cone is half of the radius of the original cone. Find the ratio of the volume of the original cone to that of the volume of the portion of the cone left after being cut by the plane (the part other than the new cone).

- A. 8 : 7
- B. 9 : 7
- C. 7 : 6
- D. 8 : 5

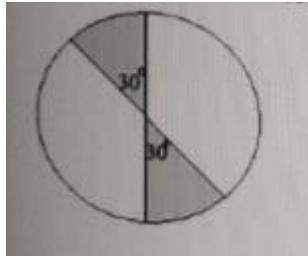
Answer: A

Q21. Find the geometric mean of the data 5, 75 and 9.

- A. 15
- B. 5
- C. 45
- D. 3

Answer: A

Q22. In a circular ground of radius 28m, the shaded portion area in the circle represents forest area while the remaining part of the circle is available for construction purposes. Find the area reserved for construction purpose(approx).



- A. 1764 m²
- B. 3120 m²
- C. 1850 m²
- D. 2053 m²

Answer: D

Q23. Find the difference between arithmetic mean and median of the first seven consecutive natural numbers.

- A. 1
- B. 3.5
- C. 2
- D. 0

Answer: D

Q24. Find the quartile deviation of the observations 16, 2, 8, 24, 4, 32, 18.

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

Answer: D

Q25. The standard deviation of a series of 'n' observations is σ . If each observation is multiplied by 12, the respective ratio of the standard deviation and the variance is:

- A. 1 : 9 σ
- B. 1 : 12 σ
- C. 3 σ : 1
- D. σ : 1

Answer: B

Q26. If the arithmetic mean of 23, 15, 19, p, 12, 7, is 16 while the arithmetic mean of 37, 28, 53, q, 42 is 41, then find $(p+q)/(q-p)$

- A. 2.6
- B. 2.2
- C. 3.5
- D. 3.2

Answer: A

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TCS Ninja Verbal Ability Questions

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

Riya finally declined the proposal which she were eagerly waiting for.

- A. She were eagerly waiting for.
- B. No error.
- C. Riya finally declined
- D. the proposal which

Answer: A

Q2. Read the following passage and fill in the blanks by selecting the most appropriate option.

Experts warn that tourists should stay as far away as possible from wild elephants. They do not look violent or ____ 1 ____ when compared to the big cats. But, a five ton ____ 2 ____ elephant can do serious damage.

- Blank 1: a. provoking b. angry c. powerful d. threatening
Blank 2: a. excited b. enraged c. pacific d. roaring

- A. 1-c, 2-b
- B. 1-b, 2-a
- C. 1-a, 2-b
- D. 1-d, 2-b

Answer: A

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

As little pieces of debris and space-dust burn up in Earth's atmosphere, it causes spectacular shooting stars.

- A. No error
- B. It causes spectacular shooting stars
- C. As little pieces of debris and space-dust
- D. burn up in Earth's atmosphere

Answer: B

Q4. Read the following passage and fill in the blanks by selecting the most appropriate option.

Sailing is fun. But it takes work and muscles to keep the sailboat moving. One will have to constantly ___1___ the weather and adjust the sails to turn the boat in the required direction. It also takes a lot of ___2___ to raise the mast and sails before you start enjoying the freedom of exploring new places in your sailboat.

Blank 1: a. search b. scrutinise c. check d. scan

Blank 2: a. attempt b. effort c. strive d. endeavour

A. 1-c, 2-b

B. 1-b, 2-a

C. 1-c, 2-d

D. 1-a, 2-a

Answer: B

Q5. Abdul is confident ___ the scholarship.

A. of winning

B. to win

C. in winning

D. for winning

Answer: A

Q6. The train arrived ___ time.

A. After

B. by

C. at

D. on

Answer: D

Q7. One part of the sentence below may contain an error. Identify the part. If there is no error, please choose 'No error'.

All the students of the class decided to head to the Principal's office to complain for the new teacher's misconduct.

A. to head to the Principal's office

B. All the students of the class decided

C. to complain for the new teacher's misconduct

D. No error

Answer: C

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

S1. The colour of the ocean is due to the absorption and scattering of the sunlight.

S2.

S3.

S4. This water now scatters both blue and yellow light, producing the characteristic green colour of the Atlantic Ocean.

P. When sunlight strikes the water, the red wavelength is absorbed and blue wavelength is scattered, making the ocean appear blue.

Q. However, in the case of the Atlantic Ocean, the decaying plants on the ocean bed release yellow pigments that dissolve in the water.

R. The colour of the water depends on the light scattered and substances dissolved in it.

A. PQ

B. QR

C. RQ

D. QP

Answer: A

Q9. One part of the sentence below may contain an error. Identify the part. If there is no error, please choose 'No error'.

The soldiers, in an attempt of showing their loyalty towards their king, fought ruthlessly until the end of war.

A.No error

B.fought ruthlessly until the end of war.

C.The soldiers, in an attempt of showing

D.their loyalty towards their king,

Answer: C

Q10. Select the most appropriate option to fill in the blank.

The world _____ for the vaccines eagerly before they were launched last month.

A. have been waiting

B. was waiting

C. has been waiting

D. had been waiting

Answer: D

Q11. Read the following passage and fill in the blanks by selecting the most appropriate option.

Did you know that most of the mothers in the animal kingdom feed on their new borns? It comes as a __1__ for many humans who have always overly __2__ the role of a mother. The animal kingdom, especially the species of the lower strata like reptiles and insects , lack emotions like mammals.

Blank 1: a. shock b. revelation c. miracle d. marvel

Blank 2: a. glorified b. amplified c. personified d. characterised

A. 1-a, 2-b

B. 1-d, 2-a

C. 1-b, 2-a

D. 1-c, 2-b

Answer: B

Q12. Select the appropriate option to fill in the blank.

Kamlesh wanted to argue and _____ to rebel, but the fear of Mr. Rattan, his teacher, always stopped him.

A. longed

B. is longing

C. has longed

D. longs

Answer: C

Q13. Rather than _____ stones on the mad man, people should be ___ with him and providing him with the appropriate treatment.

A. pelting, sympathized

B. pelting, sympathizing

C. pelted, sympathizing

D. pelt, sympathize

Answer: B

Q14. For the four sentence (S1 to S4) paragraph, sentences S1 and S3 are given. From the options P, Q and R, choose the appropriate sentences for S2 and S3 respectively.

S1. In the early years when long trade voyages were undertaken that would take months or maybe even a year to reach the destination, coconuts were granted a special place.

S2.

S3.

S4. Its popularity has recently increased although they were grown in tropical regions for more than 4,500 yrs.

- P. By and large, the coconut water was drunk and the pulp eaten.
Q. The best part of this fruit was that there were no chances of it going bad.
R. The voyages were rife with difficulties and hardships

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

Answer: B

Q15. For the four sentence (S1 to S4) paragraph, sentences S1 and S3 are given. From the options P, Q and R, choose the appropriate sentences for S2 and S3 respectively.

S1. Probably dating back to the early Neolithic and even the Palaeolithic age, the mythology of Greek goddesses is considered to be the oldest mythologies of the world, even a precursor to Indo-European mythologies.

- S2.
S3.
S4. She was a symbol of regenerative powers of nature such as fertility, birth, rebirth and death.

P. The Biblical snake is one of the many remaining symbols that demonise the old female snake death.
Q. It is largely been censored by the scientific community and yet there is extensive reliable research on the subject.

R. A 20th century archaeologist, Marija Gimbutas developed a theory on an evolved and pastoral Old European civilisation that worshipped Goddesses in the form of a bird, feline or a snake

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

Answer: A

Q16. For the four sentence (S1 to S4) paragraph, sentences S1 and S3 are given. From the options P, Q and R, choose the appropriate sentences for S2 and S3 respectively.

S1. Using data analytics has helped companies identify trends and purchase patterns at various levels and helped customise various styles.

- S2.
S3.
S4. It is correct to say that many business owners will have a lot on their minds post lockdown and till the pandemic dies down.

P. Data analytics utilizes powerful algorithms to analyse current and past customer data to come up with solutions

Q. They have adapted to digitalization and have customized their products in line with current trends

R. Low cost of implementing data analytics driven software is an added advantage

- A. QP
- B. RQ
- C. QR
- D. PR

Answer: A

Q17. You are going to read a text about the history of working women. Some sentences are missing from the text. Choose from the list (A-C) the most appropriate sentence for each gap (1-2) in the text. There is one extra sentence that you do not need to use.

Women started working in the time of the war during the period of 1914-1918 and 1939-1945, when the need of the hour was manpower at the factories and other industries. ___1___ While their husbands and brothers were away at war, women fulfilled their new roles, ___2___. Many other women were inspired by those women who were able to perform both the roles adeptly. A much greater increase in the percentile of working women was seen after the industrial revolution, when the industrial society was doing extremely well.

A. Back at home, they were still performing their own roles which were looking after kids, running the house, etc.

B. Women came out of their houses and picked up shovels

C. Industrial revolution empowered women and gave them more freedom of thought

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

Answer: B

Q18. Which one of the following sentences uses the formal language?

A. I am shocked at your rowdy behaviour.

B. Hey! Let's grab a cup of joe.

C. Heck! I lost all my data.

D. I am greatly devastated to learn about the demise of your mother.

Answer: D

Q19. The Following sentence pair can be combined into one better sentence. Choose the option that combines the two sentences best without changing the meaning.

Aniruddh has been playing the tabla throughout the day. This explains the pain in his fingers.

- A. The pain in his fingers explains that he has been playing the tabla throughout the day.
- B. Aniruddh was playing the tabla all day long so he can get pain in his fingers.
- C. Aniruddh has been playing the tabla all day long, which explains the pain in his fingers.
- D. Aniruddh has been playing the tabla throughout the day so he can't explain the pain in his fingers.

Answer: C

Q20. You are going to read a text about transformation of self. Some sentences are missing from the text. Choose from the list (A-C) the most appropriate sentence for each gap (1-2) in the text. There is one extra sentence that you do not need to use.

Transformation is usually painful because it involves a process, a means to find an end. 1 _____ In pain is our true enlightenment as our crucial lessons are learnt here. 2 _____ For humans, evolution is painfully slow as we take the longest to learn.

- A. Attainment, on the other hand, is happiness because you gained what you wanted.
 - B. Without process, however, there is no achievement, so there is no gain without pain.
 - C. How long the process continues will depend on how fast we learn our lessons.
- A. (1)-A, (2)-B
B. (1)-A, (2)-C
C. (1)-C, (2)-B
D. (1)-B, (2)-C

Answer: D

Read the passage and answer the following questions.

Mental health can affect daily living, relationships and physical health. Factors in people's lives, interpersonal connections and biological factors can all contribute to mental health disruptions. Looking after mental health can preserve a person's ability to enjoy life. Doing this involves reaching a balance between life activities, responsibilities and efforts to achieve psychological resilience. Conditions such as stress, depression and anxiety can all affect mental health and disrupt a person's routine. Although mental health is in everyday use, many conditions that doctors recognize as psychological disorders have physical roots.

Mental health is about not only avoiding active conditions but also looking after ongoing wellness and happiness. Preserving and restoring mental health is crucial on an individual basis and throughout different communities and societies the world over. In the United States, the National Alliance on Mental Illnesses estimates that almost 1 in 5 adults experience mental health problems each year.

According to the National Institute of Mental Health (NIMH), in 2017, an estimated 11.2 million adults in the US or about 4.5 % of adults, had a severe psychological condition. Everyone has some risk of developing a mental health disorder, no matter their age, sex, income or ethnicity. In the US and much of the developed world, mental health disorders are one of the leading causes of disability. Social and financial circumstances, biological factors, and lifestyle choices can all shape a person's mental well-being. A large proportion of people with a mental health disorder have more than one condition at a time. It is important to note that

good mental health depends on a delicate balance of factors and that several elements of life and the world at large can work together to contribute to disorders.

Q21. What is understood by ‘mental health disruptions’?

- A. Abnormal functioning of the mind
- B. Extreme illness of the mind and the body
- C. Disorientation of the brain
- D. Lack of coordination between the brain and other parts of the body

Answer: A

Q22. Which is not true according to the passage?

- A. Social and financial circumstances, biological factors, and lifestyle choices cannot shape a person’s mental health.
- B. Mental health involves reaching a balance between life activities, responsibilities and efforts to achieve psychological resilience.
- C. Preserving and restoring mental health is crucial on an individual basis, as well as throughout different communities and societies the world over.
- D. Mental health is about not only avoiding active conditions, but also looking after ongoing wellness and happiness.

Answer: A

Q23. What is the tone of the passage?

- A. Prescribing
- B. Incendiary
- C. Laudatory
- D. Analytical

Answer: D

Q24. What do you mean by “Mental health is about not only avoiding active conditions but also looking after ongoing wellness and happiness”?

- A. Mental health care is about looking after ongoing wellness and happiness on a day-to-day basis.
- B. Mental health care is about treatment of active mental health disruptions as well as general mental well-being.
- C. Mental health care is not about taking care of mental disruptions but bodily diseases.
- D. Mental health care is about avoiding active mental disruptions only.

Answer: B

TCS Ninja Reasoning Ability Questions

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

LAT, OES, QIR, SOQ, UUP

- A. QIR
- B. LAT
- C. UUP
- D. SOQ

Answer: A

Q2. The table shows the total number of 10th class students in 5 different schools [P, Q, R, S and T] and the ratio of the number of students in Art, Commerce and Science respectively.

The students study only the above subjects in the class of each school.

School	Total Students	Arts : Commerce : Science
P	240	1 : 2 : 3
Q	450	7 : 1 : 1
R	360	5 : 4 : 3
S	180	2 : 5 : 3
T	330	6 : 4 : 1

What is the total number of Science students in school P, Q and R together?

- A. 290
- B. 220
- C. 260
- D. 240

Answer: C

Q3. In each of the five pairs of letter-clusters, the letters in the 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. PLANT : PLZMG
- B. MANGO : MAMTL
- C. BLACK : BLBDP
- D. TABLE : ATLBE
- E. CHEER : HCREE
- A. A and B
- B. D and A
- C. B and C
- D. C and D

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.

Five persons - A, B, C, D and E - sit around a circular table, facing the centre not necessarily in that order. Who sits second to the right of D?

- I. A sits to the immediate right of E, who is not a neighbour of D.
 - II. B is to the immediate left of D.
- A. If only statement II is sufficient to answer the question
B. If the data in both the statements I and II together are necessary to answer the question.
C. If only statement I is sufficient to answer the question.
D. If the data either in statement I alone or in statement II alone is sufficient to answer the question.

Answer: B

Q5. 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, Q, R, S, T and U have different scores in a classroom test, who scored the 2nd highest marks?

- I. P scores better than T and Q, who scores better than S. S scores better than U. R scores better than P.
 - II. S scores better than at least one person, P scores better than S and T.
- A. The data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
B. The data given in both statements I and II together is not sufficient to answer the question
C. The data either in statement I alone or in statement II alone is sufficient to answer the question
Q. The data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.

Answer: A

Q6. In a certain code, if:

- I. J @ K means J is K's daughter.
- II. J % K means J is K's wife.
- III. J + K means K is J's father.
- IV. J ÷ K means K is J's mother.

F @ R % I ÷ E % N

How is R related to N in the given expression?

- A. Daughter-in-law
- B. Mother-in-law
- C. Son-in-law
- D. Mother

Answer: A

Q7. The annual salary of a person consists of two parts - basic salary and allowance. The allowance is always calculated as a fraction of the basic salary. Every year, his basic salary increases by Rs.5000 and his

allowance, as a percentage of his basic salary, increases by 5 percentage points. The present basic salary of the person is Rs. 30,000 and his present allowance is 20% of his present basic salary. After how many months from now will the Annual salary of the person be Rs. 60,750?

- A. 33
- B. 30
- C. 36
- D. 24

Answer: C

Q8. In a certain code, if:

- K @ L means K is L's father.
- K # L means K is daughter of L.
- K % L means L is mother of K.
- K + L means K is grandson of L.
- K × L means L only child of K.
- K © L means K is L's sister.

R + A × E @ F # G © T

Which of the following is a CORRECT conclusion drawn from the expression?

- A. F is daughter of A
- B. R is father of T.
- C. E is mother of T.
- D. R is son of G.

Answer: D

Q9. 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. Magazines are published weekly.
- b. Some magazines are not newspapers.
- c. Newspapers are published daily.
- d. Magazine is not published daily.
- e. Magazines are not newspapers.
- f. Some newspapers are not published weekly.

- A. b f e
- B. a f c
- C. d c f
- D. a c e

Answer: D

Q10. Three statements are given 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:

Some books are cars.
No bus is a car.
Some cars are motors.

Conclusions:

I. Some motors are not buses.
II. Some books are buses.

- A. If either I or II follows
- B. If neither I or II follows
- C. If only II follows
- D. If only I follows

Answer: B

Q11. A statement is followed by two assumptions numbered I and II. Consider the statement and decide which of the given assumptions is/ are implicit in the statement.

Statement:

Country X will talk on every issue and try to resolve every conflict with its neighbouring country.

Assumptions:

- I. Country X wants a peaceful relation with its neighbouring country.
- II. Country X will appear weaker than the neighbouring country if it tries to solve the matter by talking.

- A. Neither I nor II is implicit.
- B. Only II is implicit.
- C. Only I is implicit.
- D. Both I and II are implicit.

Answer: C

Q12. 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 young children be exposed to virtual gaming?

Arguments:

- I. Yes. It will prepare them for leadership.
- II. No. Young minds cannot take violence.

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

Answer: A

Q13. Two statements are given followed by two conclusions numbered I and II. You have to consider these statements to be TRUE even if they seem at variance with commonly known facts. Decide which of the conclusions logically follows from the given statement.

Statements:

- All runs are overs.
- Some overs are bats.

Conclusions:

- I. All bats are runs.
- II. No bat is a run.

- A. If either I or II follows.
- B. If neither I nor II follows.
- C. If only I follows.
- D. If only II follows.

Answer: B

Q14. Following are the selection criteria for any student to get admission in “Central University of India” for any undergraduate program.

- a. Must have completed high school with at least 8.0 CGPA.
- b. Must have been at least 17 years 8 months old on Jan 1st 2021.
- c. Must have scored more than 80 percentage in university entrance test.
- d. If students fulfill all the criteria except a, but have more than 6.5 CGPA in high school, his case will be sent to the Sr. Admission Officer.
- e. If students fulfill all the criteria except b, but have more than 90 percentage in the university entrance test, his case will be sent to the Head of the Department.

Tanmay has passed high school with 9.2 CGPA. He has scored 92 percent in university entrance test and he was born on 27th April 2004.

- A. His case will be sent to the Sr Admission Officer.
- B. His case will be sent to the Head of the Department.
- C. He will be selected.
- D. He will not be selected.

Answer: B

Q15. Rohan is selecting pizza from a pizzeria. Following are the criteria of selection by him for the pizza.

- a. It must be a non-veg pizza.
- b. It must cost less than INR 450.
- c. It must be a hand toasted pizza.
- d. If any pizza is satisfying all the criteria given above except c, but it is a cheese burst pizza, then he needs permission from his uncle.
- e. If any pizza is satisfying all the criteria given above except b, but provides mushroom and corn for free, then he needs permission from his mother.

"Pizza on the spot" house is providing a new hand toasted non-veg pizza which costs Rs.550. It provides free toppings of onion, capsicum, corn, paneer and tomato.

- A. He will need to take permission from his uncle.
- B. It will not be selected.
- C. He will need to take permission from his mother.
- D. It will be selected.

Answer: B

Q16. Five persons A,B,C,D, and E are comparing the number of books which they have bought recently. A bought more number of books than C and E, but not the highest. B bought more number of books than exactly one person. Then which of the following bought the highest numbers of books?

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

Answer: Option C

Q17. Rajpal is going to buy a laptop. Following are the criteria of selection of the laptop given by his father.

- a. Must be < Rs.38,000.
- b. Must have RAM equal to or more than 8 GB.
- c. Must have intel processor of version i3 or above.

- d. If any laptop is satisfying all of the above criteria except a, it will need his dad's permission if it is less than Rs.45,000.
- e. If any laptop is satisfying all of the above criteria except b, it will need his mom's permission if it has storage of more than 512 GB.

ATC58 is a new laptop in the market that costs Rs.36,000 and having 16 GB RAM. It consists of Pentium 8 processor and pre-installed Windows 10.

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

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

Answer: D

Q18. I, J, K, L, M and N have their birthdays not in the same order but in different months such as January, February, April, July, August and December.

Two people have their birthdays between N and J's birthday. M's birthday is not in the second half of the year. The birthday of N is either in January or August. K's birthday falls in the month having the minimum number of days. At the most, 3 people have birthdays between N and I's birthday.

Whose birthday falls exactly between N and I's birthday?

- A. Person I
- B. J, birthday in July
- C. Person J
- D. The one whose birthday is in April.

Answer: D

Q19. Eight persons A,B,C,D,E,F,G and H are sitting around a square table . All of them are facing towards the centre. Only one person sits on each of the sides and only one person sits on each of the corners. Four of them sit on the sides and four of them sit on the corners. C is sitting 3rd to the left of B, who sits on a side. D is sitting opposite to H, who is sitting 3rd to the right of B. A is sitting 2nd to the right of G. G is not sitting opposite to either E or F, F is not an immediate neighbor of H.

Who among the following is sitting opposite to A?

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

Answer: Option D

Q20. Six friends L, M, N, O, P and Q are sitting around a circular table and facing outside. Q is sitting fourth to the left of M, who is sitting to the immediate left of N. P is sitting opposite to N and adjacent to O. O is not sitting adjacent to Q.

Which of the following statements is TRUE?

- A. L is adjacent to P
- B. M is between O and P
- C. P is sitting opposite to Q
- D. There are 3 friends sitting between M and L.

Answer: A

TCS Ninja Programming Logic Questions

1. *From the given statements, which one is CORRECT regarding infix notation?
 - A. Operators can be written either before or after operands
 - B. Operators are written between the operands.
 - C. Operators are written between the operands.
 - D. Operators are written after the operands.

Answer: B

2. Which one NOT a unary operator?

- A. Not operator (!)
- B. ++
- C. Address of Operator (&)
- D. ==

Answer: D

3. Which of the below SDLC models does not incorporate any changes?

- A. Build and Deploy Model
- B. RAD Model
- C. Waterfall Model
- D. Automatic Deployment Model

Answer: C

4. Which of the below techniques is used in merge sort?

- A. Divide and Conquer
- B. Brute Force
- C. Backtracking
- D. Greedy Algorithm

Answer: A

5. What will be the output of the following pseudocode?

```
integer x, y, z  
x = 2  
y = 1  
z = 5  
do  
    print z--  
    while( (x&y) || (z+1) )  
End Loop
```

- A. 5 4 3 2 1 0
- B. 4 3 2 1 0 0
- C. 5 4 3 2 1 1
- D. 4 3 2 1 1 1

Answer: A

6. #include<stdio.h>

```
int main () {
    while (){
        print("Hello World");
    }
    return 0;
}
```

- A. No output will be printed
- B. Hello World
- C. Compilation error
- D. Infinite loop

Answer: C

7. Convert the following Infix to Postfix expression:

$W+x^*y+(z^*a)$

- A. $Wxy+^*za^*+$
- B. $Wxy^*+(za)^*+$
- C. Wxy^*+za^*+
- D. $W+xy^*za$

Answer: C

8. Which SDLC model ensures about risk analysis?

- A. Waterfall Model
- B. Spiral Model
- C. V Model
- D. Incremental Model

Answer: B

9. What is the output of the following JAVA code snippet?

Class Main

```
{
    public static void main (String args[]) {
        String t = "Technical Knowledge test";
        int i = t.indexOf('T');
        int j = t.lastIndexOf("t");
        System.out.print(i+ " "+j);
    }
}
```

Enter your answer only as a NUMERAL in the box.

Answer: 0 23

10. What will be the output of the following code?

```
#Include <iostream>
using namespace std;
int incrementT(int t)
{
    return ++(--(++t));
}
int main()
{
    int t = 11;
    cout<<incrementT(t);
}
```

Enter your answer only as a NUMERAL in the box.

Answer: 12

11. What will be the output of the following code?

```
#include <iostream>
using namespace std;
#define pi 3.14159
int main ()
{
    float r = 3;
    float circular_area;
    circular_area = pi * r * r;
    cout<<circular_area;
    return 0;
}
```

- A. 28
- B. 28.2743
- C. 29
- D. 18.7564

Answer: B

TCS Ninja Hands-on Coding Questions

Q1. Given a non-negative integer array Arr having size N. Each element of the array will carry a different value. This means no two elements can have the same values. The candidate has to do this with minimal changes in the original value of the elements, making every element at least as much value as it originally had.

Find the minimum sum of all elements that can be set the array for:

Example 1:

Input

3 -> Value of N, represents size of Arr
2 -> Value of Arr[0]
2-> Value of Arr[1]
4-> Value of Arr[2]

Output

9

Explanation:

As two elements have the same value, max value for the one of them needs to be incremented to 3. He can set the array with 2+3+4=9

Example 2:

Input

2 -> Value of N, represents size of Arr
3 -> Value of Arr[0]
4-> Value of Arr[1]
5-> Value of Arr[2]

Output

Wrong Input

Explanation:

Here N=2, so we need to provide value of only two elements but we are providing value of three elements so result is "Wrong Input"

The Input format for the testing

First input line: Accept a single positive integer value for N representing the size of Arr[]

Second input line: Accept N number of integer values separated by a new line, representing the original value assigned to each element.

Output Format for testing:

The output must be a non integer only (See the output format example).

Violation of input criteria: System should display message as "Wrong Input".
Additional messages in the output will result in the failure of the test cases.

Solution in C++:

```
#include<iostream>
using namespace std;
int main()
{
    int n, sum = 0, flag = 0;
    cin >> n;
    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])
            {
                arr[i] = arr[i]+1;
            }
            if(arr[j] < 0)
                flag = 1;
        }
    }
    for(int i = 0; i < n; i++)
    {
        sum = sum + arr[i];
    }
    if(flag == 1)
        cout << "Wrong Input";
    else
        cout << sum;
}
```

Q2. 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 the output will print “5”.

Example 2

Input:

101 ---> Integer

Output:

Wrong input → result - String

Explanation:

Given integer “101” is out of range. Hence the output will print “Wrong input”.

The input format for testing

The candidate has to write the code to accept one input(s).

1. First Input - First line contains an integer

The output format for testing

1. Print integer value based on the number got after toggling all the bits of given input.
2. Print “Wrong input if the string length is out of the range.
3. Additional messages in output will cause the failure of test cases.

Instructions

1. The system doesn't allow any kind of hard-coded input value.
2. Written program code by the candidate will be verified against all the inputs which are supplied from the system.

Solution in C++:

```
#include<iostream>
using namespace std;
void toggle(int &n)
{
    int temp = 1;
    while (temp <= n)
    {
```

```

        n = n ^ temp;
        temp = temp << 1;
    }
}
int main()
{
    int n;
    cin >> n;
    if(n <= 100)
    {
        toggle(n);
        cout << n;
    }
    else
        cout << "Wrong Input";
    return 0;
}

```

Q3. Given a string S(input) consisting of * and #. The length of the string is variable. The task is to find the minimum number of * and # required to make it a valid string. The string is considered valid if the number of * and # are equal. The * and # can be at any position in the string.

Note: The output will be a positive or negative integer based on number of * and # in the input string.

(* > #) : Positive integer

(# > *) : Negative integer

(#=*) : 0

Example 1:

Input

####*** → Value of S

Output

0 ---> number of * and # are equal

Example 2:

Input

####***# → Value of S

Output

-1 ---> number of # is more than *

Example 3:

Input

**** → Value of S

Output

2 ---> number of * is more than #

The input format for testing

The candidate has to write the code to accept one inputs separated by a new line.

First input: Accept a string S without any spaces (consisting of only * and #)

The output format for testing

The output should be a positive integer number (check in e.g.s 1, 2 and 3). Additional messages in output will cause the failure of test cases.

Constraints

S = {*,#}

0<len(S)<=50

Solution in C++:

```
#include<iostream>
using namespace std;
int main()
{
    string str;
    int count = 0, count1 = 0;
    cin >> str;
    for(int i = 0; str[i] != '\0'; i++)
    {
        if(str[i] == '#')
            count++;
        if(str[i] == '*')
            count1++;
    }
    if(count == count1)
        cout << "0";
    else
        cout << count1-count;
}
```

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

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

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

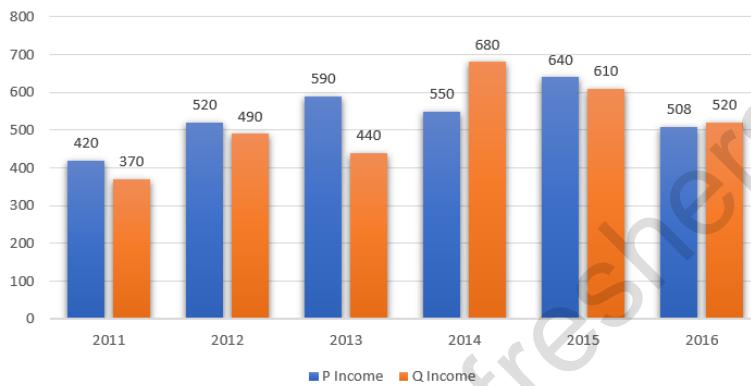
Answer: C

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

- 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 3×900 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 form his house, if he boards a bus as soon as he reaches the bus stop?

- A. 20 minutes

- 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 cm^2 . 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 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.

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”

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

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

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?

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%l
- 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?

- 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

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

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

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

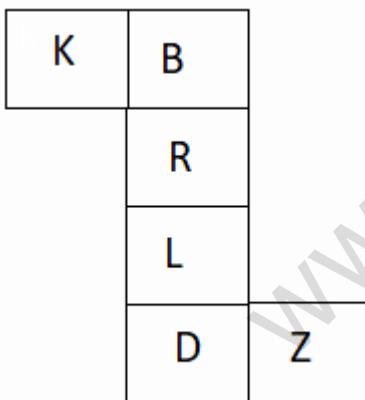
Answer: D

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 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.

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

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 ()
```

```
{
```

```
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;
```

}

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>

```
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()
```

```
{  
  
int a = 3, b = 5;  
  
while(b--)  
  
    a++;  
  
cout << a;  
  
return 0;  
  
}
```

Answer: 8

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;
```

```
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] << " ";  
}  
}
```

Q2. Given N gold wires, each wire has a length associated with it. At a time, only two adjacent small wires 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, $\text{Arr}[] = \{7, 6, 8, 6, 1, 1\}$

$\{7, 6, 8, 6, 1, 1\} - \{7, 6, 8, 6, 2\}$, 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:

$1 \leq N \leq 30$

$1 \leq \text{Arr}[0] \leq 100$

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
  
```

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);
    }
}
```

```
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);
```

}

```
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];
```

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

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TCS Ninja Numerical Ability Questions

Q1. What is the remainder when 13^{83} is divided by 11?

- A. 6
- B. 3
- C. 8
- D. 5

Answer: B

Q2. If $p = (\sqrt{6} - \sqrt{5})$ and $q = (\sqrt{10} + \sqrt{3})$, then what is the value of $(p^2+q^2)/6$?

- A. 9
- B. 6
- C. 4
- D. 3

Answer: C

Q3. What will come in place of the question mark (?) in the following question?

$$16^{10} \times 2^? = 8^8 \times 32^4$$

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

Answer: C

Q4.

If $x\left(3 - \frac{2}{x}\right) = \frac{3}{x}$ then what is the value of $\left(x^3 - \frac{1}{x^3}\right) - \left(x^2 + \frac{1}{x^2}\right)$

- A. -4/27
- B. -8/27
- C. -16/81
- D. -2/9

Answer: A

Q5. In measuring time using a device the percentage error is 0.1%. What will be the percentage error in the measurement of square of a time interval by using the same device, when the CORRECT value (in second square) is 16?

- A. 0.2001
- B. 0.201
- C. 0.2002
- D. 0.2004

Answer: D

Q6. A Shopkeeper has initially 400 Cookies. He sold 15% Cookies to Bindhu, 20% more Cookies than Bindhu to Preet, 40% Cookies to Raju and remaining Cookies to Karan. How many Cookies did Karan buy?

- A. 108
- B. 112
- C. 96
- D. 84

Answer: A

Q7. A shopkeeper incurs a loss of Rs. 90 if he marked up the price of an article by 10% and offered x% discount. He gains Rs. 70 on the same article if he exchanges the marked price with discount percent. Find the value of x?

- A. 50
- B. 25
- C. 60
- D. 40

Answer: A

Q8. A lady bought two sarees of Rs. 2000 each. She sold one at a loss of 10% and the other at a profit after offering a discount of 5%. She incurred an overall loss of 3.7%. What percentage above the cost price was the marked price of the second saree?

- A. 4
- B. 8
- C. 3.2
- D. 3.6

Answer: B

Q9. Mahendra invested certain amount in scheme for $3\frac{1}{2}$ years at $24\frac{1}{2}\%$ Simple Interest, and the interest amount received is Rs. 11760. For how much more time must he invest his capital to obtain Rs. 5880 more interest?

- A. 1.2 years
- B. 1.5 years
- C. 1.6 years
- D. 1.8 years

Answer: C

Q10. What is the interest (in Rs.) on Rs. 20 lakhs, at the rate of 4%, compounded annually of 27 months?

- A. 393424
- B. 384176
- C. 276168
- D. 356128

Answer: 184514.89 (Options are wrong)

Q11. If $a:b = 5:7$ and $1/c:1/b = 8:9$; which among the following represents $a:b:c$?

- A. 40:63:56
- B. 20:35:24
- C. 40:56:63
- D. 20:24:35

Answer: C

Q12. The respective ratio between the present daily wages of a Harsh and Pankaj is 7:8. After 8 years, this will be 9:10 respectively. If at the time of joining, the ratio of their wages was 11 :13 respectively, how many years ago they were joined the work?

- A. 4
- B. 8
- C. 10
- D. 6

Answer: D

Q13. X, Y, Z started a partnership business by investing capitals in the proportion 4:5:8. At the end of the business term, the profits earned by Y, Z, X turned out to be in the proportion 8:9:12. What was the proportion of the periods for which the investments were made by Z, X, Y?

- A. 18:45:25
- B. 3:5:4
- C. 48:75:50
- D. 45:120:64

Answer: D

Q14. A and B, working alone, can do a work in 8 and 5 days respectively. They work together and a total payment of Rs. 6500 is made to them. What is the share (in Rs.) of B?

- A. 3900
- B. 2500
- C. 4000
- D. 2600

Answer: B

Q15. 12 girls can complete a work in 21 days. 7 boys can finish the three-fifths of the same work in 30 days. Find the time taken by 3 girls and 1 boy to complete the $(31/42)$ th of the work?

- A. 30 days
- B. 45 days
- C. 50 days
- D. 60 days

Answer: 50

Q16. A person has to cover 720km distance. If he decreases his speed by 12 km/h, he reaches 2 hr late. Find the ratio of his initial and final time to reach the destination respectively.

- A. 4:5
- B. 7:9
- C. 5:6
- D. 6:7

Answer: C

Q17. A motor cyclist sets out for a journey of length 50km. After 42 mins it is observed that he has covered $\frac{7}{18}$ of the remaining distance. With how much speed should he travel the remaining distance, so that his average speed for the entire journey is 31.25 km/h?

- A. 45
- B. 36
- C. 40
- D. 30

Answer: C

Q18. The difference between two numbers is 76. Thrice the smaller number is less than the larger number by 37.5% of the smaller number. What is the larger number?

- A. 108
- B. 120
- C. 126
- D. 102

Answer: A

Q19. A hollow ,metallic cube of uniform thickness 1 cm, and outer edge 10cm melted and recast for getting it into a solid spherical shape. But in the process only $\frac{11}{21}$ of the material could be recovered.Then what is the radius (nearest to integer in cm) of the spherical shape so obtained (Take $\pi = \frac{22}{7}$)

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

Answer: A

Q20. The difference between the circumference and the radius of a circular playground is 185cms. If one fence is needed around the ground, what will be the cost of fencing if the price for fencing is Rs. 12 per cm?

- A. Rs. 2720
- B. Rs. 2160
- C. Rs. 2280
- D. Rs. 2640

Answer: D

Q21. The range of the data 10, 8, 12, 23, 18, 35, 56, 82, 49 and 76 is how much less than its maximum value?

- A. 9
- B. 10
- C. 8
- D. 12

Answer: C

Q22. The sum of the consecutive even numbers is 240. What is the least number of another set of seven consecutive even numbers whose average is the second highest number of the given set?

- A. 44

- B. 72
 C. 68
 D. 66

Answer: A

Q23. If x is the arithmetic mean of the first 4 prime numbers, Y is the arithmetic mean of the first 4 composite numbers and Z is the arithmetic mean of the first 4 multiples of 11 then, find the mode of the following numbers.

7, 3, 9, 11, 3, X, Y, Z, 9, 7, 8 and 7

- A. 11
 B. 7
 C. 9
 D. 3

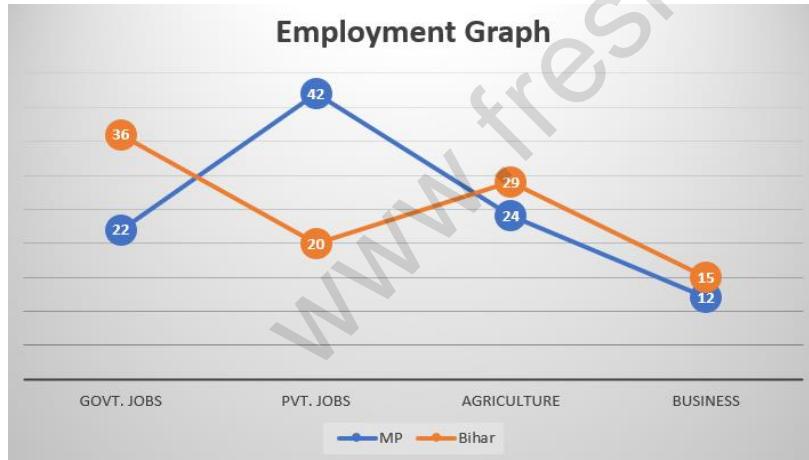
Answer: B

Q24. The cost of one share of 6 different companies is Rs. 46, Rs. 42, Rs. 51, Rs. 43, Rs. 40 and Rs. 53 respectively. How much more is the mean deviation about the median of the given costs than the mean of the costs?

- A. 43.83
 B. 41.67
 C. 45.83
 D. 46.33

Answer: B

Q25. The following line graph represents the percentage distribution of people of Madhya-Pradesh and Bihar in different employment areas. Study the line graph carefully and answer the question.



If the population of Madhya-Pradesh and Bihar is same, how much more is the number of people doing private job in Madhya Pradesh than the number of people doing business in Bihar?

- A. 180%
 B. 225%
 C. 160%
 D. 200%

Answer: A

TCS Ninja Verbal Ability Questions

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

Everyone has been talking about how well he plays a guitar.

- A. No error.
- B. Everyone has been talking
- C. about how well
- D. he plays a guitar.

Answer: D

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

The art of good film-making lies into knowing where to focus your camera.

- A. where to focus your camera.
- B. lies into knowing
- C. No error
- D. The art of good film-making

Answer: B

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

By analysing the sediment from the Bay of Bengal, researchers are finding that the present Indian monsoon system dates back at least 27 million years.

- A. that the present Indian monsoon system
- B. researches are finding
- C. dates back at least 27 million years
- D. By analysing the sediment from the Bay of Bengal,

Answer: B

Q4. Complete the given sentence by filling in the blanks with the most appropriate pair of words from the options given.

Delhi's Indira Gandhi International airport is likely to throw open _____ fourth runway for operations in September _____ year.

- A. the / that
- B. its / this
- C. their / previous
- D. its / last

Answer: B

Q5. Select the most appropriate option to fill in the blank

I wish someone _____ me to buy some sugar when we were all in the shop.

- A. remind
- B. would remind
- C. reminds
- D. reminded

Answer: B

Q6. Read the following paragraph and fill in the blanks by selecting the appropriate words.

If you are a public figure and enjoy some popularity, it becomes imperative for you to ___1___ directly with your followers. This allows you to communicate your feelings and opinion candidly and ___2___ information authentically. When there is a medium between you and your fan base, information is filtered and edited without your control.

Blank 1: A. entertain B. encourage C. engage D. encounter

Blank 2: A. give B. pass C. write D. disseminate

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

Answer: D

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

Not only did _____ late, but he was also completely unprepared and looked as though he had ___ that kind of task before.

- A. he came, never saw
- B. he come, never seen
- C. he is, never see
- D. he was, never seen

Answer: B

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

S1. With its sensational launch in 2008, IPL added a new word to India's vocabulary : "Sportainment".

S2.

S3.

S4. In addition to the economic growth, it generated employment both directly and indirectly.

P. The IPL, however has proved to be a true game-changer, with a distinct pre-and post IPL eras of sports marketing.

Q. The success of IPL proved to be catalyst for the T20 boom across the sporting world of cricket.

R. But, for India it marked the beginning of a different journey--- a journey towards becoming a sporting nation.

A. S2: P, S3:R

B. S2:Q, S3:P

C. S2:R, S3:P

D. S2:Q, S3:R

Answer: A

Q9. For the four sentence (s1 to S4) paragraph given below, sentences S1 and S4 are given. From the options P, Q and R, choose the appropriate sentences for S2 and S3 respectively.

S1. There is no denial of the fact that recycling plastic is essential but believing that it will help to save the Earth will be a misconception.

S2.

S3.

S4. The actual and grave problem is that single-use plastic is a gross abuse of advanced technology and massive production of it should be avoided at all costs

options:

P. But our effort is absolutely insufficient and distracts us from the real issue.

Q. The bigger role is played by the corporate polluters in plastic problem

R. We all make an effort to find a place to recycle our waste plastic and feel overjoyed if we succeed in doing so

A. PQ

B. QR

C. RP

D. PR

Answer: C

Q10. For the four sentence (s1 to S4) paragraph given below, sentences S1 and S4 are given. From the options P, Q and R, choose the appropriate sentences for S2 and S3 respectively.

S1. Dams that divert water out of rivers may have significant additional climate change impacts.

S2.

S3.

S4. A proposal for a dam on the Cache la Poudre River in Colorado would dry up 1,700 acres of wetlands thus emitting about 7,000 metric tons of CO₂ equivalents.

Options:

P. This is because they tend to drain and dry up downstream wetland that are “carbon sinks” holding vast amounts of greenhouse gases in soils.

Q. Besides, such draining and dry-up causes carbon and methane to be released and emitted into the air.

R. When Colorado river, to site one example, was diverted the dams dried up 2 million acres of wetlands.

- A. S1:P, S2:Q
- B. S1:R, S2:Q
- C. S1:P, S2:R
- D. S1:Q, S2:R

Answer: D

Q11. You are going to read a text about counselling. Some sentences are missing from the text. Choose from the list (A-C) the most appropriate sentence for each gap (1-2) in the text.

There is one extra sentence/part that you do not need to use.

Confidence is the key to success in the sports industry. A player who sustains injury during a match may tend to lose his confidence ____1____ in such a situation a sports psychologist can help immensely ____2____. Counsellors have a better grip over the players with sports injuries. That is why they are extremely important to be included in a team.

- A. He can help clear out the mental scars and help the player restore his lost confidence
- B. He helps young athletes mental skills to enhance their performance
- C. As a result, he may not be able to perform at the same pace again

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

Answer: A

Q12. You are going to read a text. Some parts of sentences are missing from the text. Choose from the list (A -C) the most appropriate sentence for each gap (1-2) in the text. There is one extra sentence that you do NOT need to use .

In recent years, there has been a growing trend among young children to rely heavily on a diet of junk food. Once addicted, _____ 1 _____ it is essential, therefore, _____ 2 _____

- A. that parents encourage healthy eating from an early age.
 - B. that parents make them informed about food decisions.
 - C. they find it extremely difficult to change this habit later in life.
- A. (1) B and (2) A
 - B. (1) B and (2) C
 - C. (1) A and (2) C
 - D. (1) C and (2) A

Answer: D

Q13. The following sentence can be redrafted to make it read better. Choose the sentence that is the best answer.

I have been a counsellor for 5 yrs now, but I can say I have learned much more from my interactions with clients than the theories I read in books.

- A. On being a counsellor for 5 yrs now, but I can say I have learned much more from my interactions with clients than the theories I read in books.
- B. Since being a counsellor for 5 yrs now, but I can say I have learned much more from my interactions with clients than the theories I read in books.
- C. After being a counsellor for 5 yrs now, but I can say I have learned much more from my interactions with clients than the theories I read in books.
- D. Having been a counsellor for 5 yrs now, but I can say I have learned much more from my interactions with clients than the theories I read in books.

Answer: D

Q14. Which of the following sentences uses the most formal language?

- A. The Government will do everything it can to support the initiative.
- B. It had been raining cats and dogs when we returned.
- C. With the popularity of the Internet, everyone's into DIY projects now.
- D. I employed a lot of unconventional methods for the research.

Answer: A

Q15. You are going to read a text about the Sun. Some sentences are missing from the text. Choose from the list (P -R) the most appropriate sentence for each gap (1-2) in the text. There is one extra sentence that you do NOT need to use .

From the cosmological studies of the structure of stars, we realize that, since its beginnings, the sun's brightness has slowly increased by about 30% ____1____ That is, if the Sun were even a few percentage points less bright in the past, the Earth might have been covered by ice. ____ 2 ____ Although many theories have been proposed against the Earth's ability to evade the "weak youthful Sun" issue, but how the Earth really got away from the ice fiasco remains dubious.

- P. These volcanic aerosols spread north and eventually decreased the atmospheric transmission over a large part of the terrain and helped maintain conditions temperature and pressure.
- Q. This alarming change has raised the so-called young-sun climate issue.
- R. In this frozen state, it probably wouldn't have warmed up because the ice would reflect the greater part of the emergent sun-rays back into space.

- A. 1-P, 2-R
- B. 1-Q, 2-R
- C. 1-R, 2-Q
- D. 1-R, 2-Q

Answer: D

TCS Ninja Reasoning Ability Questions

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

SBNQ, UEMO, WHLM, YKKJ, ANJI

- A. WHLM
- B. YKKJ
- C. UEMO
- D. ANJI

Answer: B

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

- [A] TUESDAY - DAYTUES
- [B] FRIDAY - RFDIAY
- [C] MONDAY - OMDNAY
- [D] THURSDAY - TUSADYHR

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

Answer: B

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

Amongst five friends seated in a straight line facing North, is Q sitting at extreme left end?

1. Q, S are immediate neighbours of each other. Similarly, T, R are also immediate neighbours of each other. P sits exactly in the middle of the line.

2. P who sits exactly in the middle of the line is second to the left of R. Q is not an immediate neighbour of P.

A. The data in statement I alone is sufficient to answer the question, while the data in Statement II alone is not sufficient to answer the question.

B. The data in Statement II alone is sufficient to answer the question, while the data in Statement I alone is not sufficient to answer the question.

C. The data either in Statement I alone or in Statement II alone are sufficient to answer the question.

D. The data in both the statements I and II are not sufficient to answer the question

Answer: B

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

A, B, C and D have different heights and weights. Who is the heaviest among them?

Statements:

I. The heaviest person is also the 2nd shortest. A is heavier than C, who is shorter than B but not shortest and D is the lightest.

II. The 2nd shortest person is the heaviest person. C is lighter than B, who is the tallest. A is heavier than D.

A. I alone is sufficient but II alone is not sufficient.

B. II alone is sufficient but I alone is not sufficient.

C. Either statement I or II alone is sufficient.

D. Both the statements together are necessary.

Answer: C

Q5. Given below is a question followed by three statements I, II and III, each containing some information. Decide which of the given statements is CORRECT.

Who amongst P,Q,R,S and T is the third youngest person?

I. Q is the second eldest person.

II. Neither P nor R is the youngest, and P nor R is the youngest, and P is not the eldest.

III. S is the second youngest person.

A. If the data in statements II and III are sufficient to answer the question, while the data in statement I is not required to answer the question.

B. If the data in statements I and II are sufficient to answer the question, while the data in statement III is not required to answer the question.

C. If the data in all the statements I, II and III together are necessary to answer the question.

D. If the data in statements I and III are sufficient to answer the question, while the data in statement II is not required to answer the question.

Answer: C

Q6. Biswas is the father of Tilak. Biswas has only two children. Tilak is the brother of Rani. Rani is the daughter of Pratiksha. Anvi is the granddaughter of Pratiksha. Shoban is the father of Anvi. Rani is married to Shoban. How is Shoban related to Tilak if '%' is son, '\$' is son-in-law, '*' is brother, '&' is brother-in-law?

A. *

B. \$

C. %

D. &

Answer: D

Q7. In a certain code, if:

Q @ R means R is the daughter of Q.

Q # R means R is the son of Q.

Q \$ R means R is the sister of Q.

Q % R means Q is the brother of R.

Q + R means Q is the mother of R.

S % T - O \$ N - E

If O and E are male members of the family. Which of the following is a CORRECT conclusion drawn from the expression?

- A. E is son of T
- B. N is daughter of O.
- C. S is sister of T.
- D. E is son of N

Answer: D

Q8. Some students of a school are stand in a row, if Anvesha who is 15th from the left and Kush who is 6th from the right interchange their positions, Anvesha becomes 24th from the left. How many students are there in a row?

- A. 28
- B. 27
- C. 30
- D. 29

Answer: D

Q9. Read the following information carefully and answer the question that follows.

1. Five persons - Anmol, Bipin, Chaya, Disha and Manoj.
2. One of them is a nutritionist, one is a dentist, one is a filmmaker, one is a politician and one is an economist.
3. Three of them - Anmol, Chaya and economist prefer tea to coffee and two of them - Bipin and the filmmaker prefer coffee to tea.
4. The politician, Disha and Anmol are friends to one another but two of them prefer coffee to tea.
5. The nutritionist is Chaya's brother.

- A. Bipin
- B. Anmol
- C. Disha
- D. Chaya

Answer: B

Q10. Mohan and Sarayu are good at image processing and signal processing. Archana and Mohan are good at signal processing and Cryptography. Archana, Pallavi and Nirupama are good at Cryptography and data

science. Nirupama and Archana are good at Cryptography and Wavelet theory. Pallavi and Sarayu are good at Data science and image processing.

Who is good at signal processing, data science and image processing?

- A. Nirupama
- B. Archana
- C. Mohan
- D. Sarayu

Answer: D

Q11. National cricket league for upcoming England Test series was held in seven different cities of India - Jaipur, Varanasi, Mysuru, Agra, Shimla, Madurai and Visakhapatnam - not necessarily in the same order during the first seven months of the year (starting from January and ending in July). The matches were held only in one city during a month.

Matches in only four cities were held between the Visakhapatnam match and the Mysuru match. The Visakhapatnam match was not held in June. Only one match was held between the Vishakhapatnam match and the Varanasi match. The Jaipur match was held immediately after the Vishakhapatnam match, The Shimla match was held immediately before the Madurai match. The Madurai match was not held in May.

How many matches were held between the Agra match and the Jaipur match?

- A. Two
- B. One
- C. Three
- D. More than three

Answer: B

Q12. A carpenter takes an order to make some chairs in 3 days. He made in following manner.

Day1 - He made one third of the total chairs plus 4 chairs.

Day2 - He made one fourth of the remaining chairs plus 4 chairs.

Day3 - He made half of the remaining chairs plus 4 chairs.

What part of the order he makes on day 2?

- A. $\frac{4}{15}$
- B. $\frac{7}{15}$
- C. $\frac{2}{5}$
- D. $\frac{5}{9}$

Answer: A

Q13. Following is the selection criteria for a candidate to get selected for the role of Mathematics Trainer in ABC organization:

- (a) Must have completed Master's in Mathematics.
- (b) Must have work experience of at least 4 years of Mathematics teaching.
- (c) If a candidate full fills criteria (b) and not (a) but have done B. Tech with 90 percent marks then case will be sent to Chief Hiring Manager.
- (d) If a candidate full fills criteria (a) and not (b) but have a B. Ed. degree then he will be in waiting list.

Reetika has completed her B. Tech from ICE in 2014 with 92 percent. She is working as mathematics teacher for last 6 years in reputed organisation. Reetika applied for maths teacher role in ABC Organisation.

- A. Her case will be in waiting list.
- B. Her case will be sent to Chief Hiring Manager.
- C. She will be selected.
- D. She will not be selected.

Answer: B

Q14. Two statements are followed by three conclusions numbered I, II and III. 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 follow/s from the given statement.

Statement
No pot is jug.
All pots are tubes.

Courses of Action
I. Some tubes are jugs.
II. Some jugs are tubes.
III. No jug is tube.

- A. Only III follow
- B. Either II and III follow
- C. Only II follow
- D. Only I follow

Answer: B

Q15. Read the given statements and conclusions carefully. Assuming that the information given in the statements is TRUE, even if they appear to be a variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:
Some engineers are players.
Some players are scientists.
No scientist is a technician.

Conclusions:

- I. 'Some scientists are engineers' is a possibility .
- II. 'Some technicians are not players' is a possibility.

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

Answer: B

Q16. In a group of 30 people, anyone who like to drink Tea also like to drink Coffee. But no one like Tea and Lassi, 8 people like Coffee and Lassi. All the people like at least one of the three drinks and the number of people who like exactly one of the three is 4 more than the number of people who like more than one of the three drinks. How many people like Tea?

- A. 8
- B. 7
- C. 2
- D. 5

Answer: D

Q17. In the question given below, four Statements: are followed by four Conclusions. One of which definitely logically follows(or is a possibility of occurrence) from the given Statements. That conclusion is your answer:

Statements:

- All glasses are rooms.
- Some rooms are planes.
- All planes are ducks.
- Some ducks are lanterns.

Conclusions:

- I. Some lanterns are planes.
- II. Some ducks are rooms.
- III. Some rooms are glasses.
- IV. Some ducks are glasses.

- A. I and II follows
- B. II and III follows
- C. All follows
- D. I, II and III follows

Answer: B

TCS Ninja Programming Logic Questions

Q1. What is the output of the following pseudocode?

```
Integer n
String s
Set s ="readwrite"
n = stringofLength(s)
Print (n ^ 1)
```

- A. Error
- B. 8
- C. 1
- D. 9

Answer: B

Q2. Which algorithm technique is most suitable to implement to solve travelling salesman problem?

- A. Divide and Conquer.
- B. Floyd Warshall Algorithm.
- C. Backtracking Algorithm.
- D. Greedy Algorithm.

Answer: D

Q3. What is the output of the below code?

```
#include <stdio.h>
int main()
{
int i, j;
for(i=1, j=1; i<=j; i++, j--)
{
    printf("%d", (i));
}
return 0;
```

- A. Compilation Error.
- B. Nothing will print.
- C. 1
- D. Loop will execute infinite time.

Answer: C

Q4.

```
#include <stdio.h>
int main()
```

```
{  
    while(!0 || !1)  
{  
    if(~1)  
{  
        printf("A");  
        break;  
    }  
    else  
{  
        printf("B");  
        continue;  
    }  
}  
return 0;  
}
```

- A. A
- B. Nothing will print.
- C. B will print infinite time.
- D. B

Answer: A

Q5. What is the average case time complexity of Radix Sort, if n is the number of elements in the array, k is the maximum number of digits in any element of the array?

- A. O(n+k)
- B. $\Theta(n+k)$
- C. $\Theta(nk)$
- D. O(nk)

Answer: C

Q6. In which stage are the master test plan artifacts required to be completed and reviewed in SDLC model?

- A. Deployment into Production stage
- B. Testing sign-off stage
- C. Exit Criteria stage of design phase
- D. Brainstorming stage of Requirement analysis

Answer: B

Q7. What is the output of the code below?

```
#include<stdio.h>

int main()
{
    int x = 25;

    if(x == 30);
        x = 50;

    if(x == 25)
        x = x + 1;

    else
        x = x - 1;

    printf("%d", x);

    return 0;
}
```

Answer: 49

Q8. How can you prevent memory leak in 'C' which you would have allocated using dynamic memory allocation?

- A. erase(ptr)
- B. free(ptr)
- C. deallocate(ptr)
- D. end

Answer: B

Q9.

```
#include<stdio.h>

1. int main()
2. {
3.     float num=2.0;
4.     switch(num+5.0)
5.     {
6.         case 1:
7.             printf("Case1: Value is : %1", num);
8.         case2:
9.             printf(Case1: Value is: %1", num);
10.        case 3:
11.            printf("Case1: Value is: %1", num);
12.        default:
13.            printf("Default: Value is: %1", num);
    }
    return 0;
}
```

The above program doesn't compile and execute to give the output. Identify which line has the error.

Answer: Line 4

Q10. What will be the missing steps of the algorithm to search.

Step 1: set ptr = head

Step 2 : Set i =0

Step 3 : If ptr = null

write "EMPTY LIST"

Go To Step 8

End if

[Missing Steps]

Step 8 : EXIT

A. Step 4 : Repeat Step 5 to 7 until ptr !=null

Step 5: if ptr -> data=item

write i+1

End if

Step 6 : i = i + 1

Step 7 : ptr = next -> ptr

[End Loop]

B. Step 4 : Repeat Step 5 to 7 until ptr !=null

Step 5: if ptr -> data=item

write i+1

End if

Step 6 : i = i + 1

Step 7 : ptr = ptr -> next

[End Loop]

C. Step 4 : Repeat Step 5 to 7 until ptr =null

Step 5: if ptr -> data=item

write i+1

End if

Step 6 : $i = i + 1$

Step 7 : $ptr = ptr \rightarrow data$

[End Loop]

D. Step 4 : Repeat Step 5 to 7 until $ptr \rightarrow data = item$

Step 5: if $ptr \rightarrow data = item$

write $i+1$

End if

Step 6 : $i = i + 1$

Step 7 : $ptr = ptr \rightarrow next$

[End Loop]

Answer: B

TCS Ninja Hands-on Coding Questions

Q1. A supermarket maintains a pricing format for all its products. A value N 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 is to design a 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: 5,1,4,4

$5*2*4*4 = 160$

Hence Output is 160

Code Solution:

```
#include<iostream>
using namespace std;
int main()
{
    int n, rem, mul = 1;
    cin >> n;
    while(n!=0)
    {
        rem = n%10;
        mul = mul * rem;
        n = n/10;
    }
    cout << mul;
}
```

Q2. An event management company has come up with a unique idea of printing their event tickets. Based on the ticket number combination (str1), the visitor is directed towards a particular class of audience. The task is to create a program/application to fetch the ticket number based on the following conditions:
Any occurrences of digits EF, 56 and G, & should be deleted
The characters EF should be in the same format.

Example 1:

Input:

4523EF58G -> Value of STR1

Output:

452358 -> After removal of characters
'EF' and 'G'

Example 2:

Input:

E12F35G58 -> Value of STR1

Output:

E12F3558 -> After removal of character 'G'

Explanation:

In the above example, characters E and F are not together. So, they won't be deleted. The output will be with only character G removal.

The Input format for testing

The candidate has to write the code to accept 1 input(s).

First input - Accept value for str1 which is a string consisting of numbers and uppercase alphabets without any spaces.

The output format for testing

The output should be a string without any spaces (Check the output in Example 1 and Example 2)

Additional messages in output will cause the failure of test cases.

Constraints:

Str={(A,Z),(0-9)}

No spaces and special characters allowed.

Only uppercase alphabets in the input string

Code Solution:

```
#include<iostream>
#include<string.h>
using namespace std;
int main()
{
    string T, F;
    cin>>T;
    int len = T.length();
    int j=0;
    for(int i=0; i<len; i++)
    {
        if((T[i]=='E'&&T[i+1]=='F') || (T[i]=='5'&&T[i+1]=='6'))
        {
            i++;
            continue;
        }
        else if(T[i]=='G' || T[i]=='7')
        {
            continue;
        }
        else
        {
            F[j]=T[i];
            j++;
        }
    }
    for(int i=0; i<j; i++)
        cout<<F[i];
}
```

TCS Ninja Numerical Ability Questions

Q1. If the 5-digit number 776xy is divisible by 3, 7 and 11, then the value of $(5x+3y)$?

- A. 13
- B. 21
- C. 23
- D. 26

Answer: C

Q2. If $x = \sqrt{9 + \sqrt{9 + \sqrt{9 + \sqrt{9 + \dots}}}}$

$$y = \sqrt{9 - \sqrt{9 - \sqrt{9 - \sqrt{9 - \dots}}}}$$

Find the relation between x and y

- A. $x - y = 1$
- B. $x + y = 1$
- C. $x/y=1$
- D. $x . y = 1$

Answer: A

Q3. The value of $3\frac{5}{6} \div \frac{2}{7}$ of $2\frac{1}{3} - (\frac{3}{40} \div \frac{2}{15}$ of $\frac{3}{8}) \div (\frac{4}{5} * 1\frac{1}{9} \div \frac{8}{15})$ is:

- A. 3.85
- B. 3.45
- C. 4.35
- D. 4.85

Answer: D

Q4. If $a^3 + b^3 = 539$ and $a+b = 11$, the value of $\sqrt{(a+b)^2 + 7ab}$ is:

- A. 18
- B. 17
- C. 13
- D. 19

Answer: B

Q5. In an examination, 55% of the students passed and 621 failed. If the number of students for the exam was 69% of those who had applied for the exam, how many students applied for the examination?

- A. 1960
- B. 1380
- C. 2000
- D. 1800

Answer: C

Q6. In 2020, a certain number of students for institute A appeared in the annual examination and 35% of the students failed. In the same year, 250% more students than that of A appeared in the same examination from institute B. If 70% of the total students of A and B, passed the examination, then the fail percentage of students of institute B is _____. (correct to one decimal place)

- A. 31.4
- B. 25.7
- C. 32.2
- D. 28.6

Answer: D

Q7. A milkman adds 20% water to a given quantity of milk. He marks the price of adulterated milk by 25% of price of pure milk. What discount should he offer on the marked price for no profit no loss situation?

- A. 25%
- B. 20%
- C. 16%
- D. 33.33%

Answer: A

Q8. A shopkeeper gains 20% by selling an article at 25% discount on its marked price. If the cost price of the article increases by 20%, how much discount percentage should he give now on the same marked price to get a profit of 8%?

- A. 20
- B. 19
- C. 12.5
- D. 16.5

Answer: B

Q9. The difference between the simple interests accrued on a sum at p% p.a. and (p-5)% p.a. after four years will be Rs. 12,000. Find the sum?

- A. Rs. 80,000
- B. Rs. 72,000
- C. Rs. 60,000
- D. Rs. 50,000

Answer: C

Q10. What is the difference between the compound interest on Rs.60000 at the rate of 12% per annum compounded annually in 2 years and simple interest earned on Rs.50000 at 16% per annum in 2 years?

- A. Rs. 746
- B. Rs. 856
- C. Rs. 816
- D. Rs. 736

Answer: D

Q11. If $a:b = 2:3$; $b:c = 4:5$; and d is 20% more than c, find the ratio between a and d?

- A. 4:9

- B. 8:9
- C. 4:7
- D. 1:4

Answer: A

Q12. Aditya, Bhaskar and Chandu divide an amount of Rs. 10,200 among themselves in the ratio 4:7:6. Aditya and Chandu give Rs.600 each to charity and Bhaskar lent Rs. 3,000 to Pradeep and earned an interest of Rs. 1,200. Find the ratio of amounts with them now.

- A. 5:4:6
- B. 3:5:9
- C. 4:5:6
- D. 3:9:5

Answer: B

Q13. Pipes A and B can fill an empty tank in 20 mins and X mins respectively, whereas C can empty the full tank in 60mins. When pipes A, B and C are opened simultaneously the tank will be filled in 15 minutes. What is the value of X?

- A. 40
- B. 30
- C. 20
- D. 45

Answer: B

Q14. The lengths of trains X and Y are 240m and 300m respectively. X and Y pass a static pole in 6 and 12 seconds respectively. In what time (in seconds) will they cross each other, if they move in the same direction?

- A. 36
- B. 24
- C. 18
- D. 30

Answer: A

Q15. A boat can go 48km upstream and 36km downstream in 5.8 hrs. The speed of the boat in still water is 16km/h. How much time (in hrs) will the boat take to go 54km upstream and 40km downstream?

- A. 6.8
- B. 6.5
- C. 7.2
- D. 7.5

Answer: B

Q16. A box contains 25 paise coins and 50 paise coins. If the number of 25 paise coins is tripled, amount of money in box will increase by 50%, then number of 50 paise coins CANNOT be equal to

- A. 36
- B. 28
- C. 32
- D. 25

Answer: D

Q17. The sides of a triangular park are 36 m, 105 m and 111m. The cost (in INR) of levelling the park at INR.

8.50 per m^2 is _____ .

- A. INR 15,980
- B. INR 16,065
- C. INR 17,010
- D. INR 15,120

Answer: B

Q18. The volume of a solid right circular cone of height 16 cm is $15085(5/7)$ cm^3 . What is the curved surface area (in cm^2) of the cone? (Take $\pi = 22/7$) (correct to one decimal place)

- A. 3300.2
- B. 3205.7
- C. 3200.4
- D. 3105.8

Answer: B

Q19. If the mean of the following distributions is 50, then what is the value of R?

Class	0-20	20-40	40-60	60-80	80-100
Frequency	6	2	3	R	5

- A. 4
- B. 8
- C. 6
- D. 5

Answer: A

Q20. What is the difference between Range and Quartile deviation of the following 11 items: 8, 10, 16, 22, 28, 18, 34, 35, 40, 26 and 12?

- A. 22
- B. 32
- C. 11
- D. 21

Answer: D

Q21. The mean of the first 7 multiple of smallest composite number is K, then find the median of the following numbers.

10, K, 13, 12, 16, 14 and 18

- A. 15
- B. 13

C. 16

D. 14

Answer: D

Q22. 30 packets of sugar of the same weight are kept in a storeroom. If 6 more packets of 35 kg each are kept in the storeroom, the average weight increases by 2.5 kg. Find the arithmetic mean of the initial total weight of sugar and the final total weight of sugar in the storeroom.

A. 600 kg

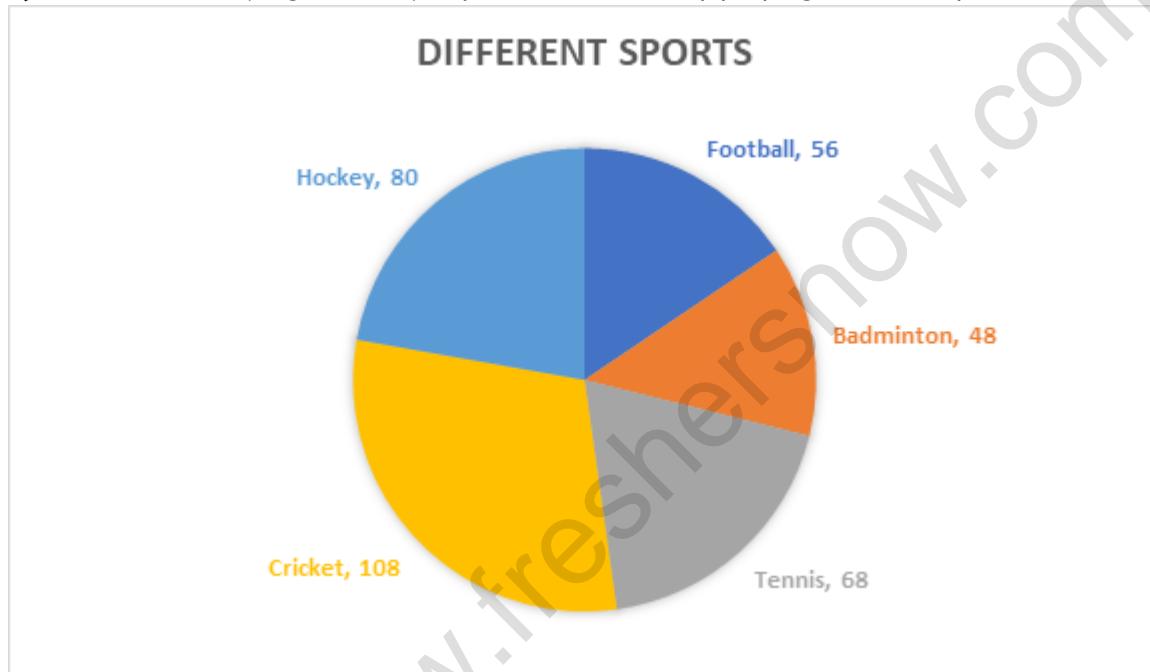
B. 750 kg

C. 810 kg

D. 705 kg

Answer: D

Q23. Distribution (degree wise) of persons in a colony playing different sports:



(Data are in Degree)

Total number of persons playing sports = 450

Study the following pie chart and answer the question

The number of persons playing Cricket exceeds the average number of persons playing Tennis, Hockey and Football by

A. 50

B. 55

C. 60

D. 65

Answer: A

Q24. Study the following table and answer the questions:

Revenue and Expenditure of companies X and Y during 2014 to 2018 (in INR crores)

Year	Company X		Company Y	
	Revenue	Expenditure	Revenue	Expenditure
2014	400	320	350	275
2015	475	350	400	300
2016	450	400	420	350
2017	500	390	480	400
2018	540	420	500	425

What percent is the average expenditure of company Y during 2014, 2016, 2018 less than 40% of total revenue of company X during 2015 and 2017?

- A. 10.1
- B. 10.3
- C. 9.8
- D. 11.4

Answer: B

TCS Ninja Verbal Ability Questions

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

When Shailja will come, we will have to talk about the issue together.

- A. No error
- B. about the issue together.
- C. we will have to talk
- D. When Shailja will come,

Answer: D

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

.

Real Madrid brilliantly played against Barcelona last night.

- A. brilliantly played
- B. against Barcelona last night.
- C. Real Madrid
- D. No error.

Answer: A

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

Tyrion Lannister is better of the two advisors of the queen.

- A. Tyrion Lannister is better
- B. of the queen
- C. No error
- D. of the two advisors

Answer: C

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

Let us wait _____ the clock strikes twelve.

- A. up to
- B. since
- C. until
- D. unless

Answer: C

Q5. Select the most appropriate option to fill in the blank

I _____ waiting for two hours and I cannot wait any longer.

- A. have been
- B. would been
- C. would have been
- D. should be

Answer: A

Q6. Select the most appropriate option to fill in the blanks

Srikant _____ his corporate job and joined the TASC force to _____ his country.

- A. relinquish; serve
- B. has relinquish; served
- C. relinquished; serve
- D. relinquished: served

Answer: C

Q7. For the four-sentence (S1 to S4) paragraph below, sentence S1 and S4 are given. From the options P,Q and R, choose the most appropriate sentences for S2 and S3 respectively.

S1. Although we commonly say that fire ants bite, fire ants actually sting.

S2.

S3.

S4. But the younger ones, whose stingers and skeletons are not fully developed, play dead.

P. Adult fire ants are aggressive and attack in swarms.

Q. They sting humans who disturb their nest.

R. Their nest consists of a loose mound with small cavities for ventilation.

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

Answer: C

Q8. For the four sentence (s1 to S4) paragraph given below, sentences S1 and S4 are given. From the options P, Q and R, choose the appropriate sentences for S2 and S3 respectively.

S1. Matcha tea is a variant of the Japanese green tea.

S2.

S3.

S4. According to many sources, the main antioxidant in green tea, EGCG, boosts metabolism.

P. One serving of Matcha tea has 10 times more antioxidants than one cup of brewer green tea.

- Q. It is made from whole tea leaves and packed with antioxidants.
R. Green tea gets its signature green colour from chlorophyll, which is a powerful detoxifier.
A. RP
B. PQ
C. QP
D. RQ
- Answer: C**

Q9. Some sentences are missing from the given text. Choose from the list (A-C) the most appropriate for each gap (1-2) in the text. There is one extra sentence/part that you do not need to use.

Krupabai Satthianadhan was India's pioneering writer in English. ___1___ She also authored a novel Saguna--A story of Native Christian life. ___2___ Krupabai then went on to write another novel Kamala--A story of Hindu Life before her untimely death at the age of 31. This was published posthumously.

- A. A native of the Bombay Presidency, she wrote articles for periodicals under the by-line An Indian Lady.
B. Queen Victoria is believed to have read this novel and been impressed.
C. Krupbai received a scholarship to study medicine in the Madras Medical College.

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

Answer: A

Q10. Which one of the following sentences uses formal Language?

- A. Can I sit beside you?
B. I would be grateful if you consider my leave application.
C. Let's go to the park today.
D. Hey! What are you doing here?

Answer: B

Q11. The following sentence can be revised into one better sentence. Choose the sentence that is the best answer.

The principal met the students. The principal had won an award.

- A. The principal met the students and they had won an award.
B. The principal who had won an award met the students.
C. The principal met the students who had won an award.
D. The principal met the students and won an award.

Answer: B

TCS Ninja Reasoning Ability Questions

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

bfj, ddl, gao, iyq, lwt, ntv

- A. ntv
- B. lwt
- C. gao
- D. iyq

Answer: C

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

- [A] FLOWER:EKNVDQ
- [B] TONGUE:SNMFTD
- [C] COMMON:XPNNPM
- [D] ARTIST:TISTAR
- [E] PRAYER:YREPRA

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

Answer: D

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

How is Q related to T?

Statements

- 1. M is the brother of N and N's mother T is the mother-in-law of P. P is the mother of Q who is the nephew of M.
- 2. Q is the sister of the daughter of P who is married to N, the son of T.

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

Answer: A

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

How is B related to C?

Statements:

- I. E is sister-in-law of A and wife of B.
- II. C and B are males and C is unmarried.
- III. D is grandfather of C and B is the only child of D.

- A. If the data in statement I alone or in statement II alone or in statement III alone is sufficient to answer the question
- B. If the data in statements II and III are sufficient to answer the question, while the data in statement I is not required to answer the question.
- C. If the data in statements I and II are sufficient to answer the question, while the data in statement III is not required to answer the question
- D. If the data in statements I and II are sufficient to answer the question, while the data in statement II is not required to answer the question.

Answer: B

Q5. In a certain code,

- P + Q means Q is the brother of P.
- P x Q means Q is the father of P.
- P ÷ Q means Q is the sister of P.
- P - Q means P is the mother of Q.

If K+LxM÷N-P, which of the following would definitely be NOT true?

- A. K is the daughter of M.
- B. P is the brother of K.
- C. K is the nephew of N.
- D. N is the aunt of K.

Answer: B

Q6. In a coded form:

- A @ B means A is the mother of B.
- A # B means A is the sister of B.
- A \$ B means A is the son of B.
- A % B means A is the husband of B.

Which of the following expressions shows that "P is the brother-in-law of T?

- A. P % Q # R \$ S % T
- B. P % Q @ R # S % T

- C. Q \$ P # R @ S % T
- D. P \$ Q @ R # S % T

Answer: D

Q7. P is the father of Q and brother of R whose son is the brother of T. U is the mother of Q and daughter-in-law of V. Z is the mother of R. W is the mother of T and is married to R.

How is V related to T?

- A. Paternal grandmother
- B. Paternal grandfather
- C. Maternal grandfather
- D. Uncle

Answer: B

Q8. A team of four is to be selected from batsmen K, L, M, N and four bowlers W, X, Y, Z such that there would be at least two batsmen in the team using the following criteria.

- i. L and Y cannot be put together
- ii. K and Z must be together
- iii. X cannot go with M and vice versa
- iv. W and N must go together

Which of the following four cannot be selected as a team?

- A. KZLM
- B. MWYN
- C. LKXZ
- D. LWMY

Answer: D

Q9. In a football ground, eight players G, H, I, J, K, L, M and N are standing in the following manner. N stands 15 m to the south of H. I and J form a straight line. M divides IJ, in 1:3 ratio. I divides HN, in 1:2 ratio.

The distance between N and G and G and L are in the ratio of 1:3. G divides MK, in 2:1. J stands 10 m to the north of L. M is 5 m to the east of I. At what distance does K stand with respect to G?

- A. 10 m
- B. 5 m
- C. 15 m
- D. 20 m

Answer: B

Q10. Two statements are followed by three conclusions numbered I, II and III. 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 follow/s from the given statement.

Statements

All pens are red

All red are pencils

Conclusions

- I. All pens are pencils
- II. All pencils are pens
- III. At least some pencils are red

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

Answer: C

Q11. Three 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 follow/s from the given statement.

Statements

- If All dogs are lion
- No lion is a tiger
- Some tigers are cat

Conclusions

- I. All dogs being cat is a possibility
- II. No dog is a tiger

- A. If both conclusion I and II follow
- B. If neither conclusion I nor II follow
- C. If either conclusion I or conclusion II follow
- D. If only conclusion II follow

Answer: D

Q12. Three 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 follow/s from the given statement.

Statements:

- Only few Mops are Brooms.
- No Bucket is Broom.
- All Buckets are Brushes.

Conclusions:

- I. All Mops are Brushes.
 - II. Some Buckets are Mops.
- A. Only the conclusion I follow.
B. Only the conclusion II follow.
C. Either conclusion I and II follow.
D. Neither conclusion I nor II follow.

Answer: D

Q13. Three statements are followed by three conclusions numbered I, II and III. 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 follow/s from the given statement.

Statements:

- 1. All watches are clocks
- 2. Some clocks are wall hangings
- 3. No watch is a wrist band

Conclusions:

- I. No wall hanging is a wrist band.
- II. A wrist band may also be a clock.
- III. Some watches are wall hangings.

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

Answer: B

Q14. Mr. X has a certain number of gold coins, 24 silver coins and 36 copper coins. Value of gold coins is equal to value of copper coins. The value of silver coins is one third the value of gold coins. Total number of gold coins is half the number of total silver and gold copper coins together. If total value of the coins he has is 4200. What is the value of 1 copper coin?

- A. 25
B. 50
C. 45
D. 60

Answer: B

Q15. In an election, 80% of the votes voted for three candidates, A, B and C. The voters constituted 80% of the population of the state. 10% of the votes cast were declared invalid. B won the election and twice the number of votes of what C got. A got 4000 votes more than C and 4000 votes less than B. The ratio of the

valid votes cast by male and female voters was 3:2. The number of valid female votes in favor of A was 2000 more than that for B and 1600 more than that for C.

What was the population of the state?

- A. 62,500
- B. 45,000
- C. 52,000
- D. 48,000

Answer: C

TCS Ninja Programming Logic Questions

Q1. What is the output of the following pseudocode?

```
FUNCTION fun()
INTEGER x,y,z;
x=2; y=4; z=5
z+= x^y&z
print z ;
END FUNCTION
```

- A. 12
- B. 11
- C. 4
- D. 7

Answer: B

Q2. Which of the following data structures is used in DFS?

- A. Stack
- B. Link list
- C. Array
- D. Queue

Answer: A

Q3. Match the following:

1. Trivial Graph	a. Any number of vertices but no edge
2. Null Graph	b. Multiple edges with self-loop
3. Pseudo graph	c. Each edge is labelled with a value
4. Weighted graph	d. Only one vertex and no edge

- A. 1-c, 2-a, 3-b, 4-d
- B. 1-b, 2-c, 3-d, 4-a
- C. 1-d, 2-a, 3-b, 4-c
- D. 1-a, 2-b, 3-c, 4-d

Answer: C

Q4. Based on what conditions, will the statement C execute?

```
if(condition 1)
{
```

```
if (condition 2)
{//
    Statement A
}
else
if (condition 3)
{
    // Statement B
}
else
{
    // Statement C
}
else
if (condition 4)
{// Statement D}
else
{
    // Statement E
}
}
```

- A. NOT(Condition 1) AND NOT(Condition 4)
- B. Condition 1 AND NOT(Condition 2) AND NOT(Condition 3)
- C. Only Condition 3
- D. Condition 2 AND Condition 3

Answer: B

Q5. Which among the following options is a compiler optimisation technique that splits any problematic first (or last) few iterations from the loop and performs.

- A. Loop inversion
- B. Loop unrolling
- C. Loop peeling
- D. Loop correcting

Answer: C

Q6. Mark the correct statement regarding the pivot in quick sort algorithm.

- A. It must be a last element
- B. It must be a first element
- C. It may first, last or any random element
- D. It must be first or last element.

Answer: C

Q7.

```
import java.io.*;
import java.lang.*;
import java.util.*;
class One{
    public void travel_greece()
    {
        int miles = 6000;
    }
}
class Two extends One {
    public void print_for() {System.out.println("Greece")}
}
public class Main {
    Public static void main(String[] args)
    {
        Two gr = new Two();
        gr.travel_greece();
        gr.print_for();
    }
}
```

Answer: Greece

Q8. What is the output of the below code snippet?

```
#include <stdio.h>
float foo(int i);
int main()
{
    float x;
    x = foo(10);
    printf("%0.2f\n", x);
}
float foo(int i)
{
    float j = 5;
    j = j / i;
    printf("%0.3f ", j);
    return j;
}
```

Answer: 0.500 0.50

Q9.

```
#define VAR_A 4  
#define VAR_B 4  
#define ALL_VAR VAR_A + VAR_B
```

Consider the above macros and evaluate the result of the following.

Res=ALL_VAR * ALL_VAR

- A. 8
- B. 64
- C. 24
- D. 16

Answer: B

TCS Ninja Hands-on Coding Questions

Q1. A carpet manufacturing industry has newly ventured into the carpet installation business. All the carpets manufactured are large squares in shape. To install, each carpet has to be cut into shapes of squares or rectangles. The number of slits to be made is given as N.

The task is to find the maximum number of equal squares or rectangles that can be achieved using N slits.

Note:

The square carpet can be cut only using horizontal or vertical slits.

Cuttings are done on a single carpet which should be rolled out completely i.e. no folding or stacking is allowed.

Squares or rectangles cut should be equal size.

Example 1:

Input:

4 → Value of N(No. of cuts)

Output:

9 → maximum number of equal squares or rectangles

Explanation:

Solution 2

Maximum number of squares/rectangles that can be obtained with N=4 is 9(Solution 1)

Hence, output is 9

Example 2:

Input:

1 → Value of N(No. of teams)

Output:

2 → maximum number of equal squares or rectangles

Code Solution:

```
#include <bits/stdc++.h>
using namespace std;
int findMaximumPieces(int n)
{
    int x = n / 2;
    return ((x + 1) * (n - x + 1));
}
int main()
{
    int n;
    cin >> n;
    cout << findMaximumPieces(n);
    return 0;
}
```

Q2. A family is about to break their piggy bank to use the money for different purposes. The piggy bank here represents an array (`arr[]`) consisting of N coins. The family has to split the coins of piggy bank into smaller stack (sub-array) of coins such that the sum of the difference between the maximum value and the minimum value of the coins for all the stacks (sub-arrays) is maximum.

Note: Each value of the array can be used only once that is only in one subarray.

Constraints:

$1 \leq N \leq 500$
 $1 \leq arr[i] \leq 100$

Example 1:**Input:**

5 → Value of N
 $\{8, 1, 7, 9, 2\}$ → $arr[]$ elements from $arr[0]$ to $arr[N-1]$,
Where each element is separated by new line.

Output:

14

Explanation:

Let us break the array elements into following subarrays:

1. (8,1) → Max:8 Min:1

2. (7,9,2) → Max:9 Min:2

So, the difference between the maximum and minimum elements in each subarrays is

1. $8-1=7$

2. $9-2=7$

Now, the sum of the differences of subarray is:

$7+7=14$

Hence, output is 14.

Example 2:

Input:

5 → Value of N

{1,2,1,0,5} → arr[], elements from arr[0] to arr [N-1],

where each elements is separated by a new line.

Output:

6

Explanation:

Let us break the array elements into following subarrays:

1. (1,2,1) → max:2, min:1

2. (0,5) → max:5, min:0

So, the difference between the max and min elements in each subarray is

1. $2-1 = 1$

2. $5-0 = 5$

Now, the sum of the differences of subarray is:

$1+5 = 6$

Hence, output is 6.

The input format for testing

The candidate has to write the code to accept 2 inputs.

First input - Accept value for N(positive integer number)

Second input - Accept N number of values (arr[]), where each value is separated by a new line.

Code solution:

```
#include<iostream>
using namespace std;
int main()
{
    int n, sum = 0;
    cin >> n;
    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/2; i++)
{
    sum = sum+(arr[i]-arr[n-i-1]);
}
cout << sum;
}
```

TCS Ninja Numerical Ability Questions

Q1. A number $452p36$ is such that it is divisible by 36. What can the value of p^2 be?

- A. 36
- B. 49
- C. 25
- D. 16

Answer: B

Q2. Find the value of $(5.7)^4 + (3.3)^4 + (18.81)^2$

$$\frac{(5.7)^4 + (3.3)^4 + (18.81)^2}{(5.7)^2 + (3.3)^2 - (18.81)} = ?$$

- A. 53.89
- B. 61.79
- C. 59.59
- D. 62.19

Answer: D

Q3.

If $x = \frac{7}{12} \div \frac{3}{4}$ of $\left(3\frac{1}{3} - \frac{5}{2}\right) - \frac{4}{15}$ and $y = (0.9\bar{1} \div 0.\overline{82}) \times \frac{2}{11}$, then the value of $(x \div y)$ is:

- A. 2/15
- B. 2 1/6
- C. 6 2/3
- D. 3 1/3

Answer: 1.899999 (Options are wrong)

Q4. The value of $(8.3)^2 + (7.9)^2 + 6.2(6.2 + 7.9 + 8.3) - 8.3 \times 7.9$

$$\frac{(83)^3 + (79)^3 - (62)^3 + 83 \times 237 \times 62}{(83)^3 + (79)^3 - (62)^3 + 83 \times 237 \times 62}$$

- A. 0.001
- B. 0.1
- C. 0.0001
- D. 0.01

Answer: C

Q5. The price of a commodity is reduced by 40% but its consumption is increased by 35%. What percent of the consumption should be increased so as to keep the same expenditure as before? (correct to one decimal place)

- A. 24.2
- B. 15.4
- C. 18.5
- D. 23.5

Answer: D

Q6. The expenditure of Rashmi is equal to 225% of her savings. If her income increases by 20% and the expenditure increases by 40%, then her savings will _____

- A. decrease by 20%
- B. increase by 25%
- C. increase by $33\frac{1}{3}\%$
- D. decrease by 25%

Answer: D

Q7. A business lady bought 400 handbags. She sold 100 of them at a profit of 20% and the rest at 10% profit. Find her overall profit %.

- A. 11.25%
- B. 12.5%
- C. 16.75%
- D. 13.75%

Answer: B

Q8. Rajesh runs a shop where he sells articles which are of equal marked prices. Rajesh had bought each of these articles at an equal cost price. Even after selling articles at a discount of 20%, Rajesh earns a profit of 20%. If on a particular day Rajesh earned a profit equal to the cost price of 100 articles by selling articles at marked price, how many articles did Rajesh sell on that day?

- A. 200
- B. 150
- C. 100
- D. 300

Answer: A

Q9. Simple interest on a sum after 32 months at $24\frac{4}{9}\%$ rate of interest is Rs. 7040. What is the compound interest on $28\frac{1}{3}\%$ more sum at 20% rate of interest after 2 years?

- A. Rs. 5575.4
- B. Rs. 5447.4
- C. Rs. 6098.4
- D. Rs. 6194.4

Answer: C

Q10. A loan of Rs. 52160 has to be returned in two equal annual installments. If the rate of interest is 3.75% p.a., compounded yearly, the total interest to be paid is

- A. Rs. 2824
- B. Rs. 2842
- C. Rs. 2925
- D. Rs. 2952

Answer: D

Q10. In a school, a total of 12 cakes of 1.5 kg each are ordered for the distribution of cakes to the children. Each boy is given 20 grams of a piece of cake and each of the girls is given a piece of 30 grams of cake. The number of girls in the school is twice the number of boys. Find the total number of children in the school.

- A. 675
- B. 650
- C. 475
- D. 525

Answer: A

Q11. 30L container has pure milk. 3L of milk is taken out and replaced with water. How many times this process must be done so that the concentration of pure milk reduces by 27.1%?

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

Answer: A

Q12. Vessels A and B contain solutions of only alcohol and water. The ratio of alcohol and water A is 3:5 and in B, it is 9:7. The contents of A and B are mixed in the ratio 3:2. How much water(in mL) should be added to 180 mL of the resulting solution to get a new solution containing alcohol and water in the ratio 1:2?

- A. 68
- B. 63
- C. 65
- D. 70

Answer: B

Q13. Working 9 hours daily, 32 men can complete a piece of work in 25 days. In how many days, can 40 men complete 2.5 times the same work working 6 hours daily?

- A. 75
- B. 72
- C. 60
- D. 80

Answer: A

Q14. A water taxi requires 9 hrs to cover 20 km upstream or 120 km downstream. Find the total time it takes for a round trip between city A and city B, separated by a distance of 40 km.

- A. 15
- B. 21
- C. 22.5
- D. 18

Answer: B

Q15. Two-fifth of a tank can be filled by pipe A in six hours, three-eighth of the tank can be filled by pipe B in four and a half hours, while pipe C attached at the bottom of the tank can empty one-fifth of the tank in

ten hours. All the three pipes are opened simultaneously, when the tank is empty. In how much time will the tank be filled completely?

- A. 6 hours
- B. 8 hours
- C. 7 hours
- D. 9 hours

Answer: B

Q16. Two persons were approaching each other at 12 km/hr and 24 km/hr respectively. A train moving in the same direction as the faster man took 25 seconds to cross him and 15 seconds to cross the other one. Find the speed of the train (in km/hr).

- A. 60
- B. 45
- C. 78
- D. 66

Answer: C

Q17. At a shop, the price of rice per kg is Rs. 15 less than the price of wheat per kg, while the price of black gram is Rs. 10 more than the price of wheat per kg. A customer bought six kg each of rice, wheat, and black gram for Rs. 780. What is the price of 2 kg of rice and 3 kg of black gram?

- A. Rs. 225
- B. Rs. 165
- C. Rs. 195
- D. Rs. 255

Answer: A

Q18. Two parallel sides of a trapezium are in the ratio of 4:3 and the distance between the two parallel sides is 50% less than the sum of the lengths of the two parallel sides. Find the sum of the lengths of the two parallel sides if the area of the trapezium is 784 sq.cm.

- A. 35 cm
- B. 28 cm
- C. 42 cm
- D. 56 cm

Answer: B

Q19. A candle in the shape of a cylinder has a radius of 12 cm and is 4 cm long. By how many centimeters can the length be increased so that when the radius is increased by the same amount, the weight of the candle increases equally?

- A. 12 cm
- B. 6 cm
- C. 4 cm
- D. 8 cm

Answer: B

Q20. Let x , y and z be the mean, median and range, respectively of the following data:

10, 7, 12, 21, 37, 14, 19, 28, 18, 12 and 42.

What is the value of $(x+y-z)$?

- A. 3
- B. 4
- C. 2
- D. 7

Answer: A

Q21. If the standard deviation of x_1, x_2, \dots, x_n is S, the variance of $x_1 + c, x_2 + c, \dots$ is _____

- A. 28
- B. 8
- C. s^2
- D. s

Answer: s^2

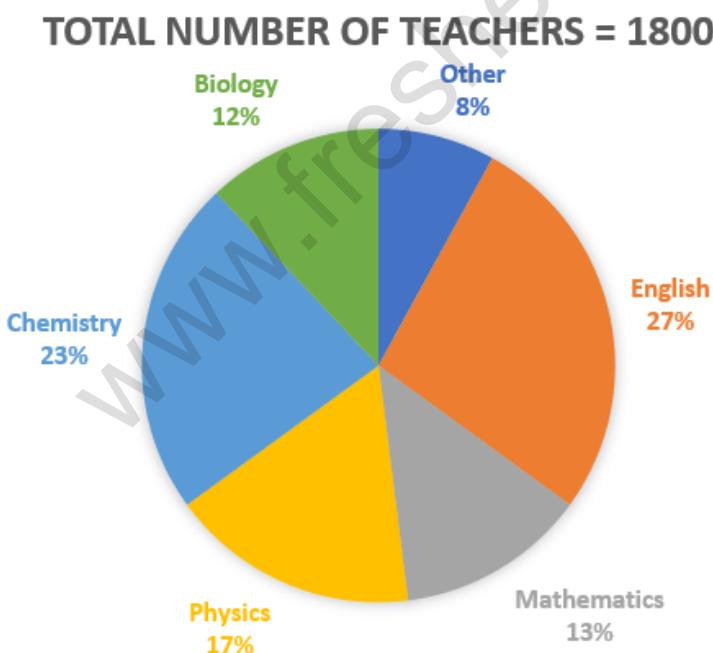
Q22. Three years ago, the average age of a family of four members was 26 years. The average age of the two children of the family five years ago was eight years. What is the age of the elder persons of the family?

- A. 50 yrs
- B. 45 yrs
- C. 35 yrs
- D. 40 yrs

Answer: B

Q23. The percentage wise distribution of teachers who teach six different subjects is as follows.

Total number of teachers = 1800



What is the total number of teachers teaching Chemistry, English and Biology?

- A. 1226
- B. 1176
- C. 1116

D. 998

Answer: C

Q24. Study the following table which shows the number of computers sold by stores A and B in January to June 2020, and answer the question that follows:

Months	Stores	
	A	B
January	185	280
February	225	255
March	250	320
April	200	265
May	315	300
June	425	320

The average number of computers (per month) sold by store B in February, April and June is what percent more than the average number of computers sold by store A in January and May?

- A. 12%
- B. 10%
- C. 12.5%
- D. 7.5%

Answer: A

TCS Ninja Verbal Ability Questions

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

A sociologist studies the ways in which people live together, raise their family and follow community structures and customs.

- A. and follow community structures and customs.
- B. A sociologist study the ways in which
- C. people live together, raise their family
- D. No error

Answer: B

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

May you carry these books for me, please?

- A. No error
- B. carry these books
- C. for me, please?
- D. May you

Answer: D

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

Neither of them are going to attend the meeting

- A. No error
- B. going to
- C. Neither of them are
- D. attend the meeting

Answer: C

Q4. Read the following paragraph and fill in the blanks by selecting the appropriate words.

The cost of production of electricity has increased in the last two years. Because of high production changes, the government has ___1___ the people to reduce their electricity ___2___. Hopefully, the situation will be at ease in the coming years.

Blank 1: A. persuaded B. funded C. resulted D. convinced

Blank 2: A. connection B. consumption C. station D. meter

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

Answer: C

Q5. Select the most appropriate option to fill in the blank

Eagles can fly _____ sparrows.

- A. taller than
- B. higher than
- C. taller then
- D. higher then

Answer: B

Q6. Read the following paragraph and fill in the blanks by selecting the appropriate words.

There are many hobbies that one can practise for leisure. Travelling for exploration can be one of the most 1._____ hobbies one can practise. Nevertheless, it is the most expensive too, as nowadays the airfares are 2._____. However, one can still explore cheaper options and nearby destinations for travelling.

Blank 1: A. nourishing B. glorifying C. dissatisfying D. fulfilling

Blank 2: A. distribution B. refunding C. decreasing D. skyrocketing

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

Answer: D

Q7. Read the following sentence and fill in the blank by selecting the appropriate word.

The most obvious evil of the advertisement industry lies in the exaggerated _____ of the products actual goodness.

- A. misinformation
- B. determination
- C. judgement
- D. portrayal

Answer: A

Q8. Read the following sentence and fill in the blank by selecting the appropriate word.

It is not easy to _____ the profoundness of a mother's love for her child.

- A. overestimate
- B. fluctuate
- C. equate
- D. evaluate

Answer: C

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

S1. Recently a study was undertaken in the school of the UK to ascertain which country's children have the highest IQ.

S2.

S3.

S4. Though the validity of IQ as a measure of the intelligence is debatable, this study surely lifted the spirit of the Indian children.

P. The study revealed that the Indian children were superior to the natives of other countries.

Q. This result was mighty surprising for many education experts.

R. If this is the truth, then why is there a brain drain in India?

A. QR

B. PQ

C. RP

D. PR

Answer: B

Q10. For the four sentence (s1 to S4) paragraph given below, sentences S1 and S4 are given. From the options P, Q and R, choose the appropriate sentences for S2 and S3 respectively.

S1. Research suggests that the price of products and advertisements motivate customers to try out new products

S2.

S3.

S4. Above all, the credibility of the source of the advertised message affects the consumers judgement of the performance risk associated with the product being advertised.

P. The conflicting findings may be due to the nature of advertisements

Q. The relationship between price and perceived performance risk is also impacted by the presentation of an advertised message.

R. A relatively high price will reduce the consumer's perception of performance risk.

A. QP

B. QR

C. RQ

D. PQ

Answer: A

Q11. For the four sentence (s1 to S4) paragraph given below, sentences S1 and S4 are given. From the options P, Q and R, choose the appropriate sentences for S2 and S3 respectively.

S1. Free play is much better in benefits and scope than structured play during early childhood

S2.

S3.

S4. Which leaves no room for free-thinking, imagination, make-believe games and overall development of a child's wild mind

P. Both free-play and structured play can be combined in suitable proportions for the optimal development of a child's mind

Q. The former opens up a plethora of possibilities for widening the horizons of a child's imagination

R. Whereas, the latter confines a child's mind within certain rules of the game

A. RP

B. QP

C. PQ

D. QR

Answer: D

Q12. You are going to read a text about anger management. Some sentences are missing from the text. Choose from the list (A-C) the most appropriate sentence for each gap (1-2) in the text.

There is one extra sentence/part that you do not need to use.

Loving someone and receiving love are essential elements in emotional health. _____ 1 _____ People tend to harbour resentment and hatred against someone who wronged them. They would be surprised to see how close they feel to that person after releasing their negative emotions and energy. _____ 2 _____

A. But expressing anger instead of repressing it is also necessary to vent frustration.

B. This helps in building trust and mutual respect for others.

C. If only people can learn the art of managing their anger and resentment.

A. 1-C, 2-A

B. 1-A, 2-C

C. 1-A, 2-B

D. 1-B, 2-A

Answer: D

Q13. You are going to read about Health. Some sentences are missing from the text. Choose from the list (A-C) the most appropriate sentence for each gap (1-2) in the text. There is one extra sentence that you do NOT need to use .

We do not understand the value of good health until it is lost 1 _____ Good health is a blessing to cherish and an asset to protect. 2 _____ Eating healthy, having ample sleep, and not indulging in smoking or drinking are a few of the rules of good health.

A. It is human nature to disregard everything that is easily available to them.

B. We must make efforts to keep our lifestyle in accordance with the rules of good health.

C. We should also pay visits to the doctor for complete body check-ups at regular intervals.

A. (1)-C, (2)-A

B. (1)-A, (2)-B

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

Answer: B

Q14. You are going to read a text supplements. Some sentences are missing from the text. Choose from the list (A-C) the most appropriate sentence for each gap (1-2) in the text. There is one extra sentence/part that you do not need to use.

When one takes calcium supplement, one must also make sure that diet is rich in vitamin D, ___1___. If there is not sufficient vitamin D intake, body does not generate hormone calcitriol. Then the body starts to take calcium from its deposits in the skeleton, ___2___

- A. because this vitamin makes the absorption of the calcium possible
- B. because this vitamin is also very good for bone health
- C. which weakens existing bone and gradually diminishes whole structure

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

Answer: C

Q15. The following sentence pair can be combined into one better sentence. Choose the option that combines the two sentences best without changing the meaning.

The father was happy on his son's birthday. The son was feeding hundred poor men instead of throwing a birthday party.

- A. The father was happy to see his son feeding hundred poor men on his birthday instead of throwing a birthday party.
- B. The father was happy to see his son throwing a birthday party instead of feeding hundred poor men.
- C. The father was happy on his son's birthday, so the son was feeding hundred poor men instead of throwing a birthday party.
- D. The father was happy to see his son feeding hundred poor men on his birthday and throwing a birthday party.

Answer: A

Q16. Which of the following sentences uses formal language?

- A. You're not a part of this project
- B. May I have your introduction?
- C. Go on, prove yourself to the world
- D. We'll meet you in an hour

Answer: D

TCS Ninja Reasoning Ability Questions

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

BEG, DGI, GJL, KMP, PSU

- A. GJL
- B. DGI
- C. KMP
- D. PSU

Answer: C

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

[A] MASTER - RTSMAF

[B] POSTAL - LTOPSA

[C] HASTEN - NTSAHE

[D] FATHER - RHAFTE

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

Answer: B

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

What is the sum of the roots of the quadratic equation $ax^2+bx+c = 0$?

1. The roots of $ax^2+bx+c = 0$ are successive integers whose product is 30
2. The roots of $ax^2+bx+c = 0$ are distinct integers such that the sum of their squares is 72

- A. If the question cannot be answered even by using both the statements together
- B. If the question can be answered by using both statements together but cannot be answered by using either statement alone
- C. If the question can be answered by using either statement alone
- D. If the question can be answered by using one of the statements alone but cannot be answered by using the other statement alone

Answer: D

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

What is the average age of the father, mother and son?

Statements:

- I. The ratio of the age of the mother and son is 5:3. Father is 4 years older than the mother, who was as old as the sons 22 years ago.
- II. The son is now as old as the father was 26 years ago. The average age of the father and mother is 57 years.

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

Answer: C

Q5. Given below is a question followed by three statements I, II and III, each containing some information. Decide which of the given statements is CORRECT.

Six persons A, B, C, D, E and F are sitting around a circular table facing towards centre. Who sits second to the right of D?

- I. C and D are immediate neighbours and C is sitting opposite B.
- II. A is not a neighbour of E, but is a neighbour of B.
- III. D is not a neighbour of A, but is second to the right of F.

- A. Only I and III
- B. Only I and II
- C. Only II and III
- D. All three together

Answer: B

Q6. In a certain code, if;

A-B means, A is wife of B

A/B means, A is brother of B

A+B means, A is daughter of B

AxB means, A is son of B

Which of the following expressions represent that D is the father of B?

- A. B/D+I-K
- B. BxD/K-I
- C. B/I-DxK
- D. I-K+D+B

Answer: B

Q7. In a certain code, if;

If 'A x B' means A is the son of B.

If 'A + B' means A is the father of B.

If 'A > B' means A is the daughter of B.

If 'A < B' means A is the wife of B.

Which of the following pairs of people represents cousins with regard to the relations given in the expressions, if it is provided that A is the sister of J?

'L > V < J + P' and 'S X A < D + F < E + K'

A. SV

B. SP

C. LP

D. SF

Answer: B

Q8. Six movies are played on six consecutive days of the week, starting from Monday. Rambo is played after Diago, Noorie is telecast between Diago and Akira. Blade is played immediately after Hungama but before Akira. Which movie is played on Tuesday?

A. Noorie

B. Hungama

C. Blade

D. Akira

Answer: C

Q9. Seven coloured balls -Violet, Purple, Blue, Green, Yellow, Orange and Red are put together in a row during a game. Yellow ball is to the immediate left of Purple ball. Violet is to the left of Blue but not between Blue and Purple. Exactly four balls are between Blue and Purple. If Violet and Green have two balls between them, how many balls do Orange and Red have between them.

A. 3

B. 0

C. 1

D. 2

Answer: C

Q10. In a class, seven students are given different ranks such that the one who got the highest marks was ranked highest i.e. rank 1 and the one who got lowest was ranked lowest. Number of students ranked higher than Q is same as that ranked lower than S. K's marks are less than J's. S is ranked just higher than J. D's marks are lower than T but more than Q, who is ranked higher than S. N's marks are more than J. What is N's rank?

A. 4th

B. 3rd

C. 5th

D. 2nd

Answer: B

Q11. P, Q, R, S, T, U, V, W and X are nine industries. R is 2km to the east of Q. P is 1km to the north of Q and W is 2km to the south of P, V is 1km to the west of W, while S is 3km to the east of V. U is 2km to the north of V. X is situated exactly between Q and R while T is exactly between W and S.

What is the distance between P and U?

- A. 1.41 km
- B. 3 km
- C. 2 km
- D. 1 km

Answer: D

Q12. Raman is planning to get married and he has decided following criteria for the selection of his life partner.

- a) Girl must be a working professional
- b) Girl must be a graduate
- c) Girl's home state must be Bihar
- d) If a girl's profile fulfills all the criteria except (a) but girl has completed her MBA, he will need permission from his father.
- e) If a girl's profile fulfills all the criteria except (c) but she is from either UP or MP, he will need permission from his mother.

Reshma's profile is there on matrimonial site. She is a graduate and working in a logistics company earning 8LPA. Her home state is UP and she is Brahmin in caste.

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

- A. He will select the above profile
- B. He will need permission of his mother
- C. He will need permission of his father
- D. He will not select the above profile

Answer: B

Q13. 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 follow/s from the given statement.

Statements:

- All liquids are water.
- Some solid are liquids.

Conclusions:

- I. Some water is solid.
- II. Some water is not liquids.

- A. If only II follows
- B. If either I or II follows
- C. If only I follows
- D. If neither I nor II follows

Answer: C

Q14. A statement is followed by four courses of action numbered I, II, III and IV Assuming everything in the statement to be TRUE, decide which of the suggested courses of action (a decision to be taken for follow up /improvement in regard to the problem) logically follow(s) for pursuing.

Statement

The voters in a panchayat in an assembly constituency in India said that they would not vote in the coming general election.

Courses of Action

1. The election commission should be approached to issue orders so that all the voters of any panchayat cannot boycott voting in the general election.
2. The present MLA should cut down on the privileges given to the people of this panchayat so that they would refrain from boycotting the election process.
3. The elected representatives should listen to their grievances and settle any anomalies at the earliest.
4. The government should announce incentives for those voters in this panchayat, who would participate in the voting process.

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

Answer: B

Q15. A statement is followed by two assumptions numbered I and II. Consider the statement and decide which of the given assumption(s) is/are implicit in the statement.

Statement

In spite of normal demand-supply conditions, company X is reducing the price of sugar this year.

Assumptions

- I. Other companies are also reducing the price
- II. Quality of sugar this year by company X is not too good to put high price

- A. Only assumption II is implicit
- B. Both I and II are implicit
- C. Neither I nor II is implicit
- D. Only assumption I is implicit

Answer: D

Q16. A statement is followed by two arguments numbered I and II. Decide which of the argument(s) is/are strong (important and directly related to the question) and which is/are important and not related to the central message of the question).

Statement:

Should Naya Pradesh be divided into small states?

Arguments:

- I. Yes. It is a hugely populated state and so it is difficult to manage a state with such a large population.
- II. No. Current state government is trying to rule at its best.

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

Answer: B

Q17. Given below are four sets of statements numbered I, II, III and IV. Each set has three statements. Select the set or sets in which the third statement follows as a possibility.

Sets of statements:

- I. Some plants are trees. Some trees are shrubs. Some shrubs are not plants.
- II. Some windows are outlets. All outlets are doors. Some doors are not windows.
- III. No mango is vegetable. All vegetables are eatables. Some eatables being mangoes is possible.
- IV. All lions are forest animals. A few forest animals are pets. It is possible that some lions are pets.

- A. Only I and III
- B. Only II and IV
- C. Only III and IV
- D. Only II, III and IV

Answer: C

Q18. The production by a company 'xyz' in the year 1997 was double than that in the year 1995 where the production in 1995 was 30000. The production in the year 1996, 1888, 1999 and 2000 were 46000, 70000, 50000 and 80000 respectively.

For how many years was the production more than the average production of the given years?

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

Answer: B

Q19. Maxwell car manufacturing company produced 540, 360, 480 and 630 cars and sold 480, 380, 490 and 600 cars in January, February, March and April 2021 respectively. Johnson car manufacturing company produced 460, 320, 540 and 580 cars and sold 420, 350, 510 and 600 cars in January, February, March and April 2021 respectively. During this 4-month period, the selling price of each car was Rs. 5 lakh by the Maxwell company and Rs. 8 lakh by the Johnson company. But if a buyer purchased a car which was not manufactured in the same month, the buyer got a discount of 10% by Maxwell company and 25% by Johnson company. Both the companies adopted a principle that the cars of the previous month must be sold before the cars of the current month are sold.

What was the revenue earned from selling cars by the Johnson company only in the month of April 2021?

- A. Rs. 4720 lakh
- B. Rs. 4870 lakh
- C. Rs. 4060 lakh
- D. Rs. 3360 lakh

Answer: A

Q20. The management of a school decided to renovate the school. The school is located in a ground of dimensions 600m x 250m. The school has ten classrooms each of dimensions 10m x 6m. There are three more rooms -one for the principal, one for the office and the third for the staff. The school has a playground of dimensions 180m x 150m. The principal's room has dimensions of 8m x 6m, the office has dimensions of 8m x 6m and the staff room has dimensions of 12m x 6m. All the classrooms have to be done stone following. The office and the staff room are to be done wooden flooring while the principal room is to be done marble flooring. The height of all the rooms is 2.5m. The cost of marble flooring is Rs. 280 per sqm, the cost of wooden flooring is Rs.160 per sqm and the cost of stone flooring is Rs. 60 per sqm.

What is the difference between the cost of flooring of the principals room and the cost of flooring of the staff room?

- A. Rs. 1,920
- B. Rs. 1,560
- C. Rs. 1,780
- D. Rs. 2,140

Answer: A

Q21. In the following diagram, the shape indicates different categories of persons and the numbers in different segments show the number of persons.

How many women MBAs are either corporate managers or hardworking but not both?

- A. 18
- B. 13
- C. 15
- D. 16

Answer: A

TCS Ninja Programming Logic Questions

Q1. When we traverse the binary search tree in inorder we get the output in which order?

- A. Increasing order
- B. Random order
- C. Decreasing order
- D. Linear order

Answer: A

Q2. Which of following SDLC model is used in Risk handling in software development process?

- A. Spiral model
- B. Waterfall model
- C. Prototype model
- D. Iterative model

Answer: A

Q3. What is the output of the below code?

```
#include <stdio.h>

int main()
{
    int digit=8;
        printf("%d",digit<<1);
    return 0;
}
```

- A. 8
- B. -18
- C. -8
- D. 16

Answer: D

Q4. What will be the output of the following code?

```
#include<iostream>
using namespace std;
class Food
{
private:
    string food;
public:
    void orderFood (string food)
    {
```

```
this->food = food;  
}  
void myFood() { cout<< food << endl;}  
};  
  
int main()  
{  
    Food name;  
    string food = "pizza";  
    string* fastfood = &food;  
    name.orderFood(*fastfood);  
    name.myFood();  
    return 0;  
}
```

Answer: pizza

Q5. What is the output of the below code?

```
#include <iostream>  
using namespace std;  
int main()  
{  
    long nbr=21889, c=0;  
    c = (nbr == 0) ? 1 : (21889^1);  
    cout<<c;  
    return 0;  
}
```

Answer: 21888

Q6. What is the element of the stack once all the elements listed below are pushed onto?

First Element -> {4,2,1,4,5,3,7,8} ->Last Element

Further operations ->
Pop, Pop, Push (3)

- A. 3
- B. 7
- C. 4
- D. 1

Answer: 3

Q7. What is output of the following code?

```
#include<stdio.h>
int main()
{
int x=1,y=1;
if(y<0) if(y>0) x=3;
else x=5;
printf("%d", x);
return 0;
}
```

- A. true
- B. 0
- C. false
- D. 1

Answer: 1

Q8. What is the output of the following code?

```
#include<stdio.h>
int main()
{ int x,y,z;
x=03;y=02;z=01;
printf("%d", x | y & z);
return 0;
}
```

- A. 10
- B. 11
- C. 3
- D. 01

Answer: 3

Q9. What is output of the following pseudocode?

```
FUNCTION funn()
INTEGER x,y,z;
x=7; y=4; z=2;
x=x && y || z;
PRINT,x;
END FUNCTION
```

- A. False
- B. 0
- C. True
- D. 1

Answer: 1

TCS Ninja Hands-on Coding Questions

Q1. A party has been organised on a cruise. The party is organised for a limited time(T). The number of guests entering ($E[i]$) and leaving ($L[i]$) the party at every hour is represented as elements of the array. The task is to find the maximum number of guests present on the cruise at any given instance within T hours.

Example 1:

Input:

5 ---> Value of T

[7,0,5,1,3] ---> $E[]$, element of $E[0]$ to $E[N-1]$, where input each element is separated by new line

[1,2,1,3,4] -----> $L[]$, element of $L[0]$ to $L[N-1]$, where input each element is separated by new line

Output:

8 -----> Maximum number of guests on cruise at an instance.

Explanation:

1st hour

Entry: 7, Exit: 1

No. of guests on the ship: 6

2nd hour:

1st hour

Entry: 0, Exit: 2

No. of guests on the ship: $6 - 2 = 4$

Hour 3:

Entry: 5, Exit: 1

No. of guests on the ship: $4 + 5 - 1 = 8$

Hour 4:

Entry: 1, Exit: 3

No. of guests on the ship: $8 + 1 - 3 = 6$

Hour 5:

Entry: 3, Exit: 4

No. of guests on the ship: $6 + 3 - 4 = 5$

Hence, Maximum Number of guests within 5 hours is 8.

Code Solution:

```
#include<iostream>
using namespace std;
int main()
{
    int n, sum = 0, max;
    cin >> n;
    int a[n], b[n];
    for(int i = 0; i < n; i++)
    {
        cin >> a[i];
    }
    for(int i = 0; i < n; i++)
    {
        cin >> b[i];
    }
    max = sum;
    for(int i = 0; i < n; i++)
    {
        sum = sum + a[i] - b[i];
        if(max < sum)
            max = sum;
    }
    cout << max;
}
```

Q2. Given an array Arr[] of size T, contains binary digits.

Where

0 represents a biker running to the north.

1 represents a biker running to the south.

The task is to count crossing bikers in such a way that each pair of crossing bikers (N, S), where $0 \leq N < S \leq T$, is passing when N is running to the north and S is running to the south.

Constraints:

$\leq N < S < T$

Example -1:**Input:**

5. -> Number of elements i.e. T
0. -> Value of 1st element
1. -> Value of 2nd element
0. -> Value of 3rd element
1. -> Value of 4th element
1. -> Value of 5th element

Output:

5

Explanation:

The 5 pairs are (Arr[0], Arr[1]), (Arr[0], Arr[3]), (Arr[0], Arr[4]), (Arr[2], Arr[3]) and (Arr[2], Arr[4]).

Note that in all pairs first element is 0, second element is 1 and index of first element is smaller than index of second element.

The Input format for testing:

First input line: Accept a single positive integer value for T representing the size of Arr[].

Second input line:: Accept N number of integer values (0 or 1) separated by a new line.

Output Format for Testing:

The output must be a non-negative integer number only (See the output format in example).

Additional messages in the output will result in the failure of test cases.

Code Solution

```
#include <iostream>
using namespace std;
int main()
{
    int n, count=0;
```

```
cin>>n;
int B[n];
for(int i=0; i<n; i++)
    cin>>B[i];
for(int i=0; i<n; i++)
{
    if(B[i]==0)
    {
        for(int k=i+1; k<n; k++)
        {
            if(B[k]==1)
                count++;
        }
    }
}
cout<<count;
}
```

TCS NQT Model Programming/ Coding Questions Paper

1. CALCULATE LENGTH OF THE HYPOTENUSE OF RIGHT ANGLED TRIANGLE

```
#include <stdio.h>
#include <math.h>
#include <stdlib.h>
int main(int argc, char *argv[])
{
    if(argc<2)
    {
        printf("please use \"prg_name value1 value2 ... \\n\"");
        return -1;
    }

    int a,b,side1,side2,side3;
    a=atoi(argv[1]);
    b=atoi(argv[2]);
    side1=pow(a,2);
    side2=pow(b,2);
    side3=sqrt((side1+side2));
    printf("the hypotenuse is %d",side3);
    return 0;
}
```

2. QUES. SAMPLE PROGRAM TO PRINT ALL INTEGERS USING COMMAND LINE ARGUMENTS

```
// Program to print all value of
// command line argument
// once we get the value from command
// line we can use them to solve our problem
#include <stdio.h>

int main(int argc, char *argv[])
```

```

{
int a,b;
int i;
if(argc<2)
{
printf("please use \"prg_name value1 value2 ... \"\n");
return -1;
}

for(i=1; i<argc; i++)
{
printf("arg[%2d]: %d\n",i,atoi(argv[i]));
}

return 0;
}

```

3. FACTORIAL OF A NON NEGATIVE INTEGER

Problem Statement: Write a C program to calculate the factorial of a non-negative integer N. The factorial of a number N is defined as the product of all integers from 1 up to N. Factorial of 0 is defined to be 1. The number N is a non – negative integer that will be passed to the program as the first command line parameter.

<https://www.freshersnow.com/placement-papers-download/> Write the output to stdout formatted as an integer WITHOUT any other additional text. You may assume that the input integer will be such that the output will not exceed the largest possible integer that can be stored in an int type variable.

FACTORIAL OF A NON-NEGATIVE INTEGER

Example:

If the argument is 4, the value of N is 4.

So, 4 factorial is $1*2*3*4 = 24$.

Output : 24

The code below takes care of negative numbers but at the end of the page there is easier code which though doesn't take negative numbers in consideration.

#include <stdio.h> // for printf

```
#include <stdlib.h> // for function atoi() for converting string into int
// Function to return fact value of n
int fact(int n)
{
    if (n == 0)
        return 1;
    else {
        int ans = 1;
        int i;
        for (i = 1; i <= n; i++) {
            ans = ans * i;
        }
        return ans;
    }
}

// argc tells the number of arguments
// provided+1 +1 for file.exe
// char *argv[] is used to store the
// command line arguments in the string format
int main(int argc, char* argv[])
{
    // means only one argument exist that is file.exe
    if (argc == 1) {
        printf("No command line argument exist Please provide them first \n");
        return 0;
    } else {
        int i, n, ans;
        // actual arguments starts from index 1 to (argc-1)
        for (i = 1; i < argc; i++) {
            // function of stdlib.h to convert string
            // into int using atoi() function
            n = atoi(argv[i]);
            // since we got the value of n as usual of
            // input now perform operations
            // on number which you have required
            // get ans from function
            ans = fact(n);
        }
    }
}
```

```
// print answer using stdio.h library's printf() function
printf("%d\n", ans);
}
return 0;
}
}
```

OutPut – 24 if command line argument is 4.

or simple program to write n! is –

```
#include <stdio.h>
int main(int argc, char *argv[])
{
    int n,i;
    unsigned long long factorial = 1;
    n = atol(argv[1]);
    for(i=1; i<=n; ++i)
    {
        factorial *= i;
    }
    printf("Factorial of %d = %llu", n, factorial);
}
```

4. WRITE A C PROGRAM TO CONVERT BINARY TO DECIMAL USING COMMAND LINE ARGUMENTS

Here is basic C program without command line –

```
#include<stdio.h>
int main(int argc, char *argv[]){
int num,binary,decimal=0,rem,base=1;
num=atoi(argv[1]);
binary=num;
while(num>0){
rem=num%2;
decimal+=rem*base;
num=num/10;
base=base*2;
}
printf("%d",decimal);
return 0;
}
```

5. WRITE A C PROGRAM TO CHECK WHETHER GIVEN NO. IS PALINDROME OR NOT USING COMMAND LINE ARGUMENTS

```
#include<stdio.h>
#include<stdlib.h>
int main(int argc, char* argv[])
{
int num=atoi(argv[1]);
if(isPalindrome(num))
printf("Palindrome");
else
printf("Not Palindrome");

return 0;
}
int isPalindrome(int n)
{
int m=n;
int rev=0;
while(m!=0)
{
rev=(rev*10) + (m%10);
m=m/10;
}
```

```
if(rev==n)
return 1;
else
return 0;
}
```

6. Write a C program that will find the sum of all prime numbers in a given range. The range will be specified as command line parameters. The first command line parameter, N1 which is a positive integer, will contain the lower bound of the range. The second command line parameter N2, which is also a positive integer will be the upper bound of the range. The program should consider all the prime numbers within the range, excluding the upper and lower bound. Print the output in integer format to stdout. Other than the integer number, no other extra information should be printed to stdout.

```
#include<stdio.h>
int main(int argc,char *argv[])
{
int N1,N2,i,j,sum=0,count,lower,upper;
if(argc!=3)
exit(0);
N1=atoi(argv[1]);
lower=N1+1;
N2=atoi(argv[2]);
upper=N2;
for(i=lower;i<upper;i++)
{
count=1;
for(j=2;j<=i/2;j++)
{
if(i%j==0)
{
count++;
}
}
if(count==1)
{
sum=sum+i;
}
}
printf("%d",sum);
```

```
return 0;  
}
```