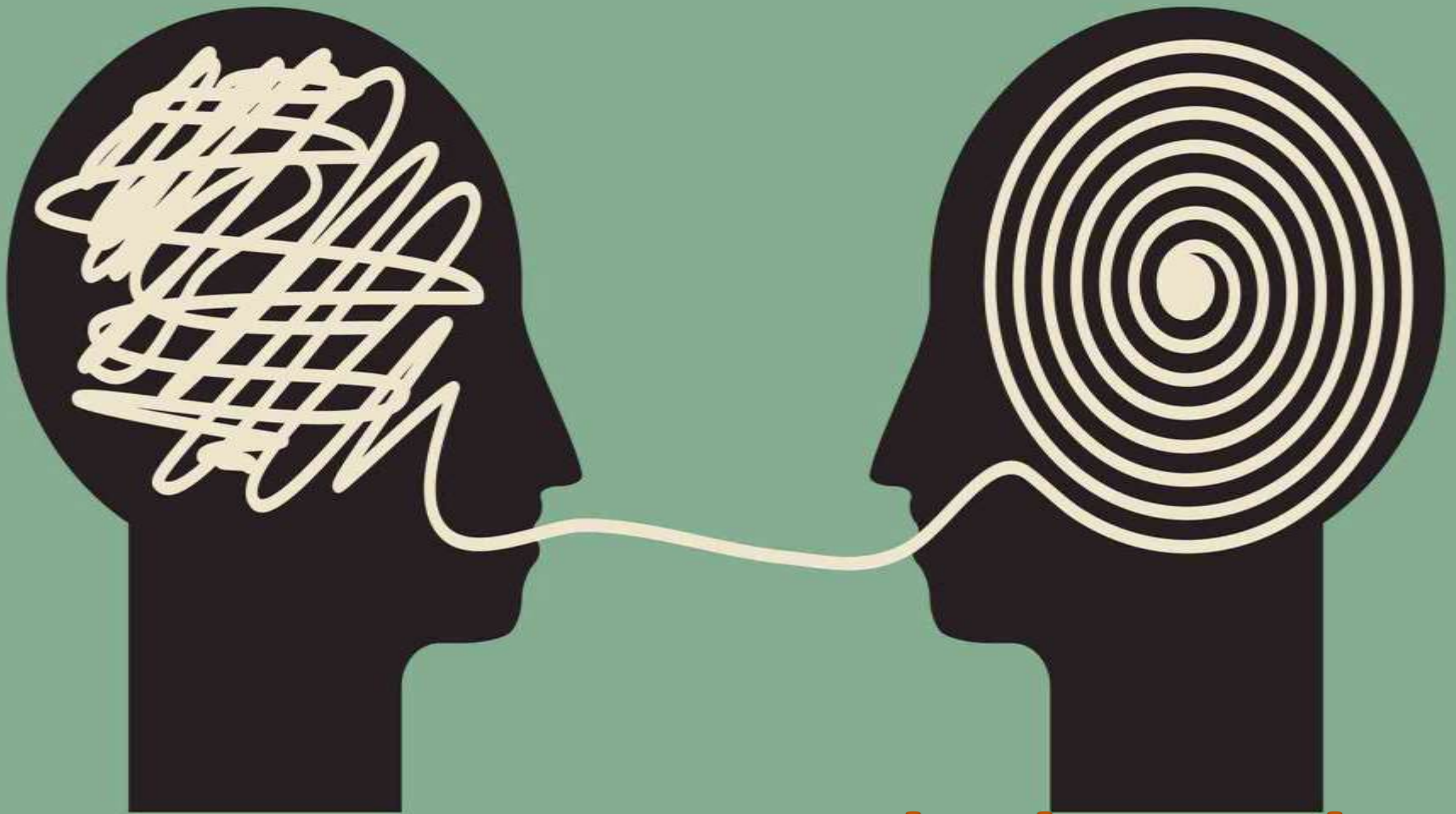# LOGICAL REASONING

By – Rahul Agrahari

QUESTION

In a lake, there are 10 steps labelled using alphabets from A to J. Starting from step A, every minute a frog jumps to the 4th step from where it started - that is from the step A it would go to the step E and from E it would go to the step I and from I it would go to C etc. Where would the frog be at the 60th minute if it starts at the step A ?

(a) B

(b) A

(c) H

(d) D

(e) E

EXPLANATION

Solution:

The steps are labelled using alphabets from A to J.

TO MAKE IT EASY, WE HAVE ASSIGNED NUMBERS TO THE STEPS AS FOLLOWS:

Labelled with alphabets : A B C D E F G H I J

Labelled with numbers : 1 2 3 4 5 6 7 8 9 10

The frog takes total 60 minutes and takes 4 step length jumps every time.

Thus,

1st minute : 1 + 4 = 5th step (E)

2nd minute : 5 + 4 = 9th step (I)

3rd minute : 9 + 4 = 3rd step (C)

4th minute : 3 + 4 = 7th step (G)

5th minute : 7 + 4 = 11 = 10+1 = 1st step (A)

The same process is repeated 12 x 5 times.

Then, the jumping positions are

1 5 9 3 7

1 5 9 3 7

1 5 9 3 7 and so on.

After 15 cycles, frog will be in the 1st position i.e., at 5th minute, 10th minute, 15minutes....60th minute frog will be in the 1st position.

i.e., at 60t

QUESTION

Each vowel of the GLADIOLUS word is substituted with the next letter of the English alphabetical series and each consonant is substituted with the letters preceding it. How many vowels will be present in the new arrangement?

A. One

B. Two

C. Three

D. No Vowel

EXPLANATION

Answer: Option D

Solution:

G → F
L → K
A → B
D → C
I → J
O → P
L → K
U → V
S → R
Thus,
GLADIOLUS = FKBCJPKVR.

QUESTION

If Football is called Cricket, Cricket is called Basketball, Basketball is called Badminton, Badminton is called Volleyball, Volleyball is called Hockey and Hockey is called Golf, then which of the following games is not played using a ball?

A. Volleyball

B. Basketball

C. Hockey

D. Cricket

EXPLANATION

Answer: Option A

Solution:

- Badminton is played without any ball and in the question Badminton is called Volleyball

QUESTION

Rohit was walking on the street, one boy requested him to donate for cancer patients welfare fund. He gave him a rupee more than half the money he had. He walked a few more steps. Then came a girl who requested him to donate for poor people's fund for which he gave two rupees more than half the money he had then. After that, again a boy approached him for an orphanage fund. He gave three rupees more than half of what he had. At last he had just one rupee remaining in his hand. How much amount did Rohit have in his pocket when he started?

A.Rs.58

B.Rs.35

C.Rs.42

D.Rs.72

EXPLANATION

Answer: Option C

Let X be the rupees he initially had.

He gave for the cancer fund one rupee more than half of what he had.
i.e.,[1 +(X/2)].
Remaining money = X-(1+X/2) = [(X/2) - 1.
he gave for poor people's, rupee 2 more than half what he remain with,
= [2+{1/2*(X/2-1)}]
= [2+{(X-2)/4}]
= (6+X)/4
Now, remaining money = ((X/2)-1) - ((6+X)/4)
= (X-10)/4.

Again he gave 3 rupees more than half of what he had for orphanage,
[3+(1/2*((X-10)/4))]
= 3+[(X-10)/8]
= (14+X)/8
now left money,[{(X-10)/4]-[(14+X)/8]}
= [(2X-X-20-14)/8]
= (X-34)/8
As given, finally he had one rupee remaining so (X-34)/8 = 1
So,
X-34 = 8
X = 8+34 = 42
Hence, Rohit had Rs. 42 initially in his pocket.

EXPLANATION

Answer: Option C

Let X be the rupees he initially had.

Solution:- [{(((X/2) − 1)1/2 − 2)1/2} − 3)] = 1

X = 42

QUESTION

How many such pairs of letters are there in the word SENDING, each of which has as many letters between its two letters as there are between them in the English alphabets?

A. No such letters

B. One

C. Two

D. Three

EXPLANATION

- **Answer: Option D**

- **Solution:**

- Only Three such pairs,
  I**(N)**G
  D**(IN)**G and
  S**(ENDI)**N

QUESTION

A Parking lot Contains 160 Vehicles. Each Vehicle is either a car or a truck, and each vehicle is either red or green. 70 vehicles are red, and 120 vehicles are cars. If there are 18 green trucks, how many red cars are there?

A. 54

B. 50

C. 48

D. 45

EXPLANATION

Answer: Option C

Solution:

- **Total number of Vehicles = 160
There are 70 red vehicles thus rest 90 are green vehicles,
out of which 18 are green trucks then we get,
Green cars = 90 - 18 = 72.
Given, Number of cars = 120.
Then, number of red cars,
= 120 - 72
= 48 Red cars.**

QUESTION

Grass in lawn grows equally thick and in a uniform rate. It takes 24 days for 70 cows and 60 days for 30 cows to eat the whole of the grass. How many cows are needed to eat the grass in 96 days?

A. 22 Cows

B. 20 Cows

C. 18 Cows

D. 16 Cows

EXPLANATION

Let initially X grass was present there, and it is increasing by Y grass per day, then for the first condition We get,

$X+24*y = 24*70$ ----(1)

For the 2nd condition, we have,

$X+60*Y = 60*30$----(2) Now, On solving equation (1) and (2), we get

$X = 1600$ and

$Y = 10/3$

Third Condition,

$X+96*Y = 96*N$ -----(3) [N = Number of Cows required]

Putting the values of X and Y in equation (3), We get

$N = 20$.

QUESTION

Mohan is older than Prabir. Suresh is younger than Prabir. Mihir is older than Suresh, but younger than Prabir. Who among the four is youngest?

A. Prabir

B. Mihir

C. Mohan

D. Suresh

EXPLANATION

- **Answer: Option D**
- **Solution:**
- Mohan is older than Prabir.
- Prabir < Mohan
- Suresh is younger than Prabir means Prabir is older than Suresh.
- Suresh < Prabir < Mohan
- Mihir is older than Suresh but younger than Prabir.
- Suresh < Mihir < Prabir < Mohan
- Suresh is the youngest.

QUESTION

- **Find the odd number/letters from the given alternatives.**

A.626

B.841

C.962

D.1090

EXPLANATION

- **Answer: Option B**

- **Solution:**

- 626-1 = 625 = 25^2.
  962-1 = 961 = 31^2.
  1090-1 = 1089 = 33^2.
  But,
  841-1 = 840 (not a perfect square).

  Otherwise, 841 is a perfect square of 29, other are not a perfect square.

QUESTION

Find the odd number/letters from the given alternatives.

A.PQXZ

B.CQBN

C.ABDF

D.PRMN

EXPLANATION

Answer: Option C

Solution:

PQXZ → No vowel.

CQBN → No vowel.

PRMN → No vowel.

ABDF → One vowel.

QUESTION

Look at this series: 53, 53, 40, 40, 27, 27, ...
    What number should come next?

A.12

B.14

C.27

D.53

EXPLANATION

In this series, each number is repeated, then 13 is subtracted to arrive at the next number.

QUESTION

Look at this series: 3, 4, 7, 8, 11, 12, ... What number should come next?

A.7

B.10

C.14

D.15

EXPLANATION

This alternating addition series begins with 3; then 1 is added to give 4; then 3 is added to give 7; then 1 is added, and so on.

COGNIZANT

In a group of 6 men and 4 women, four are to be selected. In how many different ways can they be selected such that at least one man should be there in the group?
a) 209 ways
b) 194 ways
c) 205 ways
d) 120 ways

EXPLANATION

A group of 4 has to be selected with at least one man So this can be done in (1 man and 3 women), (2 men and 2 women), (3 men and 1 women) and 4 men.
The number of ways in which this can be done is
$(6C1 \times 4C3) + (6C2 \times 4C2) + (6C3 \times 4C1) + (6C4)$
On solving this we get 209 ways in which these combinations can be obtained.

COGNIZANT

A box contains 15 balls out of which 4 are white, 5 are red and 6 are blue. Three balls are to be drawn at random from the bag. What is the probability that all of them are red is:
a) 1/22
b) 2/89
c) 2/77
d) 2/91

EXPLANATION

The number of ways in which all the three balls would be red = 5C3 / 15C3
= 10/455 = 2/91

COGNIZANT

X, Y and Z can do a piece of work in 20, 30 and 60 days respectively depending on their capacity of doing work. If X is assisted by Y and Z on every third day, then in how X will complete the work?
a) 12 days
b) 15 days
c) 16 days
d) 18 days

EXPLANATION

We need t first count the amount of work done in 2 days by X
X can do a piece of work in 20 days
So, in 2 days he can do = 1/20 * 2 = 1/10

Amount of work done by X, Y and Z in 1 day = 1/20 + 1/30 + 1/60 = 1/10
So, amount of work done in 3 days = 1/10 + 1/10 = 1/5
So the work will be completed in 3 * 5 = 15 days.

COGNIZANT

Identify the odd number from the series: 835, 734, 642, 751, 853, 981, 532
    a) 532
    b) 853
    c) 981
    d) 751

EXPLANATION

Looking at the series closely we see that in each number, the difference between the first and last digit of each number is the middle number, except 751