NATIONAL CYBER OLYMPIAD (NCO) NATIONAL SCIENCE OLYMPIAD (NSO) INTERNATIONAL MATHEMATICS OLYMPIAD (IMO)

## Logical Reasoning Sample Test Class-5

## Total-Question:15

Time:15.0 Mins

| PATTERN \& MARKING SCHEME |  |
| :---: | :---: |
| Section | (1) Logical Reasoning Sample Test Class-5 |
| No. of Questions | 15 |
| Marks per Ques. | 1 |

## Logical Reasoning Sample Test Class-5

## Q 1.

Find the value of $P$ and $Q$ respectively, if each number is the sum of the two numbers directly below it.


A 8,6
B 3,6
C 5,6
D 9, 10

## Q 2.

Find the missing figure which completes the given figure pattern.

$\qquad$
$\qquad$






## Q 3.

Manha remembers that her father's birthday is after $10^{\text {th }}$ but before $15^{\text {th }}$ of October. Her sister remembers that her father's birthday is before $20^{\text {th }}$ but after $13^{\text {th }}$ of October. On which day is her father's birthday?

A $15^{\text {th }}$
B $13^{\text {th }}$
C $14^{\text {th }}$
D $16^{\text {th }}$

Q 4.

The model of a tower shown here is made up of unit cubes stacked on top of each other.How many unit cubes in all are used to form the tower?


A 35
B 36
C 37
D 38

Q 5.

Select the correct mirror-image of Figure (X), if the mirror is placed along MN.


Figure (X)

## A



B


C



Q 6.

If $\qquad$ square is removed from the given figure, the perimeter of the figure will be decreased.

| P | T | S | V | W |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | U | Y | Q | X | L |
|  | R | Z |  |  |  |
|  |  |  |  |  |  |

A P
B Q
C R
D S

Q 7.
figures have atleast one line of symmetry.


A 2
B 1
C 3
D 4

## Q 8.

Which of the following options is exactly embedded or hidden in Figure (X)?


Figure (X)

A


B



D


Q 9.
21 students are standing in a line. Deepak is in the middle.
What is his position from left as well as from right?
A $12^{\text {th }}$
B $10^{\text {th }}$

D $9^{\text {th }}$

## Q 10.

Find the combination of numbers from the options so that letters arranged accordingly forms a meaningful word.

| E | R | B | K | N | O |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 3 | 4 | 5 | 6 |

A $3,2,6,1,4,5$
B $3,2,6,4,1,5$
C $3,6,2,1,4,5$
D $3,2,1,6,5,4$

## Q 11.

Find the missing number in the given number pattern.


A 316
B 1135
C 291
D 377

## Q 12.

If 'Train' is called 'Bus', 'Bus' is called 'Tractor', 'Tractor' is called 'Car', 'Car' is called 'Scooter', 'Scooter' is called 'Bicycle', 'Bicycle' is called 'Rickshaw', then which is used to plough a field?

A Train
B Bus
C Tractor
D Car

Q 13.

Which of the following Venn diagrams depict the relationship amongst 'Nose, Body, Hands'?


## Q 14.

In the given letter series, which letter is exactly midway between $F$ and $R$ ?
YACBEDFIJHKMNOQPRUVXTZ

A $N$
B K
C M
D H

Q 15.

Find the missing number, if a certain rule is followed in the given figures.


A 25
B 33
C 39
D 41

## Solutions:

## S 1.

From the figure above, we get following equations:
$1+P=Q$
$P+3=$ ?
Since $Q+$ ? = 14, we can assume that -
$1+P+P+3=14$
$2 P+4=14$
$2 P=14-4=10$
$P=10 / 2=5$
So, $\mathrm{Q}=1+\mathrm{P}=6$
The correct answer is C .

## S 2.

There is a common pattern in above figures: a new symbol appears in the bottom triangle of the first figure, then it moves clock-wise and appears in left triangle of second figure, then in right triangle of third figure. Then it disappears. And a new symbol appears in the bottom of the fourth figure.
That means in the missing figure, the left triangle will have + symbol, the right triangle will have $=$ symbol, and the bottom triangle will have - symbol.
So, $B$ is the right answer.

## S 3.

According to Manha, her father's birthday could be on -
$11^{\text {th }}, 12^{\text {th }}, 13^{\text {th }}, 14^{\text {th }}$
According to her sister, their father's birthday could be on -
$14^{\text {th }}, 15^{\text {th }}, 16^{\text {th }}, 17^{\text {th }}, 18^{\text {th }}, 19^{\text {th }}$
Since 14th is the common date both sisters remember, so the father's
birthday must be on $14^{\text {th }}$.
So, the right answer is C .

## S 4.

Let's count from the top.
First Row = 1 (visible)
Second Row $=2$ (visible) +1 (hidden under First Row) $=3$
Third Row $=3$ (visible) +3 (hidden under Second Row) $=6$
Fourth Row $=4$ (visible) +6 (hidden under Third Row) $=10$
Fifth Row $=5$ (visible) +10 (hidden under Fourth Row) $=15$
Total of all rows $=1+3+6+10+15=35$
So, the correct answer is $A$.

If mirror is placed along MN, then all three overlapping circles will appear the same in the mirror image. The numbers 7,1 and 19 will be in the same positions, but facing the other way.
The positions of 13 and 17 will change. So in the mirror image, 13 will be in right circle, instead of left, and appear as 31.17 will be in the left circle, instead of right, and appear as 71 . And both 31 and 71 will face the other way. See the image below. So, the right answer is $B$.


S 6.

Let's take all the given options.
If we remove $P$, then perimeter of the figure will decrease by 3 sides.
If we remove $Q$, the perimeter will increase by 2 sides.
If we remove $R$, the perimeter will remain the same.
If we remove $S$, the perimeter will increase by 2 sides.
So, $A$ is the right option.

## S 7.

Line of symmetry means any line drawn on a figure that can divide it into two parts which are mirror images of each other.
If we fold along the central line of the Triangle, we get two triangles of same shape on both sides of the fold.
If we fold the Circle along line $A B$, then again we get two half circles on both sides of the fold.
But there are no such lines drawn in the Flower and the Star. So there are 2 figures which have lines of symmetry, the correct answer is B.

## S 8.

If we mentally try to put every figure on top of Figure $X$, we see that only Option B has the lines that will fit the design.

## S 9.

Deepak is in middle, so that means he has equal number of students on both sides. Take Deepak out of 21, divide the remaining number by 2 (20/2 = 10). So Deepak has 10 students on each side of him, and he is 11 th from each side.

S 10.

B-3
R-2
O-6
K - 4
E-1
N-5
So, the right answer is B.

## S 11.

We have to find the missing number in the following sequence:


Check the first two numbers - a and b.
$9 \times 3=27$
Now, let's check the next two numbers - c and d.
$31 \times 3=93$
That means, if we multiply the next number (e) by 3, we would get the missing number (f).
$97 \times 3=291$
The missing number is 291 . That means Option C is the right answer.

## S 12.

We use a Tractor to plough the field. But 'Tractor' is called 'Car'.
That means we will use 'Car' to plough the field. Hence, Option D is the right answer.

## S 13.

The Nose and the Hands separate organs, which are part of the Body. That means the following Venn diagram will represent this correctly: Hence, Option A is the right answer.

## S 14.

There are 9 letters between $F$ and $R$. So, the 5 th letter will be exactly midway between $F$ and $R$.
FIJHKMNOQPR
$M$ is the 5th letter. So, the right answer is Option C.

## S 15.

We have to find the missing number in the following sequence:

a

b

c

Observe the number carefully in Triangle a. If we multiply the left and right numbers and add the bottom number, then we will get the middle number.
$(3 \times 5)+4=15+4=19$
Now, let's see if this rule will apply to Triangle b.
$(7 \times 5)+4=35+4=39$
That means the rule will apply to Triangle c also.
$(6 \times 4)+9=24+9=33$
So, the middle number in Triangle c is 33 . Hence, Option B is the correct answer.

