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**TEST OF REASONING ABILITY**  
**VERBAL REASONING**  
**SERIES**

A sequence of several terms is known as series. Each unit of a sequence or series is called a term or an element. All terms in a series follow a certain pattern throughout the sequence. Each term in the series is important because there exists a certain relationship between two consecutive terms. Several types of questions are asked on series in competitive examinations. There are two types of series. The questions based on the English Alphabet series are somewhat easy because one can remember the position of each alphabet easily.

e.g. A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

- (ii) Find the eighteenth letter in the above alphabet series. The 18th letter counting from the left end is 'R'.
- (ii) Find the tenth letter from the right. ▽ When we count from the right to the left, the tenth letter is 'Q'.

This is an example of simple series and questions on this are relatively simple.

**Mixed Series** : It consists of letters, numbers and symbols. Unlike the English alphabet series, the number of elements in mixed series is not fixed. It can have any number of elements like 24, 25, 26, 28 or even more. Questions on series judge how quickly one can identify the relationship between the given elements. To solve questions on this, a lot of practice is required because there are hardly any short cuts to solve them. Questions on series can be classified into two types.

- (1) Questions on series consisting of letters and numbers.

TGL8AVER6MI3UZDSW75FJBYQ21K

e.g. If the question is to find which letter/number is fourth to the left of the 16th letter/number from your left -

First find the 16th letter/number from the left, which, in this case, is 'S' and the fourth letter/ number to the left of 'S' is '3'. In short you are asked to find out  $16 - 4 = 12$ th letter/number from left.

- (2) Questions on series consisting of letters, numbers and symbols.

The series is made more complicated by including letters, numbers and symbols in it. e.g.

Study the following series of letters, numbers and symbols.

=NR<2AF3@LMZP>Q54RTJ6KL#\$98 3

Different types of questions based on this series can be asked. e.g. If the first thirteen elements are written in the reverse order, which letter/number/symbol will be the sixth to the left of the twelfth letter/number/symbol from your right ?

Solution : When the first thirteen elements are written in the reverse order, the sequence is as follows.

PZML@3FA2<RN=>Q54RTJ6KL#\$98

3

The twelfth [ ] from the left is 'N' and the sixth element to the left of 'N' is 3.

Remember the important points given below when solving questions on series.

- (1) Quickly count the total number of terms in the given series.
- (2) Locate the middle term if any.
- (3) Write down the total number of letters, numbers and symbols respectively.

**Illustrative Questions -**

**Directions :- 1 to 5** : Study the following letter-number-symbol series and answer the questions that follow :-

KD4      NTZ#<6P@5MA2\$1VCR>9E=

- If the first five elements and the last ten elements are written in the reverse order, which of the following will be the seventh element to the right of the eleventh element from your left ?  
 (1) =                      (2) 2                      (3) 9                      (4) E                      (5) None of these
- Which of the following elements would be exactly midway between the ninth element from the left and the eleventh element from the right ?  
 (1) M                      (2) P                      (3) 5                      (4) @                      (5) None of these
- Four of the following five are alike with respect to their positions in the above series and hence form a group. Which one does not belong to the group ?  
 (1)DT<                      (2)P2C                      (3)5\$C                      (4)T65                      (5)@2V
- What should come in place of the question mark (?) in the following series on the basis of the above sequence ?  
 N#A,Z@\$, <2V,PCR, ?  
 (1) M E 5                      (2) 5 E 9                      (3) @ = >                      (4) 2 > 9                      (5) None of these
- Which of the following elements would be fourth to the right of 'M', if all the elements after 'M' are written in the reverse order ?  
 (1) =                      (2) E                      (3) >                      (4) V                      (5) None of these

**Key Illustrative Questions**

**1 to 5 :**

**Reference** :- K D 4      N T Z # < 6 P @ 5 M A 2 \$ 1 V C R > 9 E =

1.(3) **9.**

When the first five elements and the last ten elements are written in the reverse order, the sequence would be as follows :-

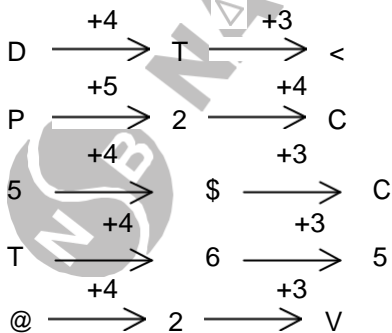
N 4DKTZ#<6P@5MA=E9>RCV1\$2

The 11th element from the left is 'P' and the seventh element to the right of P is '9'.

2.(4) **@.**

The 9th element from the left is < and the 11th element from the right is A. So, the element midway between < and A is '@'.

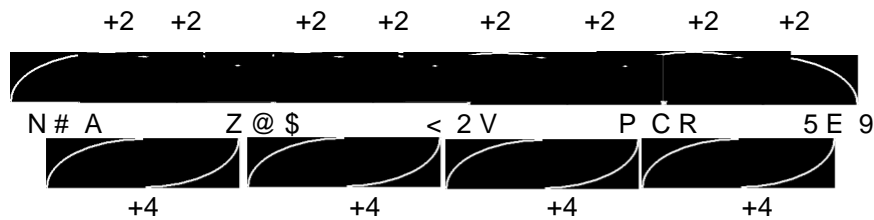
3.(2) **P2C.**



As can be seen, P2C does not belong to the group.

4.(2) **5 E 9.**

Each element in a group is connected to the corresponding element in the next group as follows.



5.(3) **≥.**

When all the elements after M are written in the reverse order, the sequence is as follows.

KD4 NTZ#<6P@5M=E9≥RCV1\$2A

The fourth element to the right of 'M' is '>'.

**Short-cut :**

We are asked to find the fourth element to the right of 'M', after the remaining letters are reversed. We need not write the new series but count the fourth letter from the right, which is '>'.

**EXERCISE : 1**

1. **Reference** :- 6 A \$ # B 7 6 4 S T = 9 K F @ L ? V

How many symbols are followed by letters in the above series ?

- (1) 3                      (2) 2                      (3) 4                      (4) 5                      (5) None of these

2. If every alternate letter starting from 'C' of the English alphabet is written in small letters, rest all are written in capital letters, how will the word "JULY" be written ?

- (1) JULY                  (2) jUIY                  (3) JuLy                  (4) juLy                  (5) None of these

3. How many 7's are there in the following number series, which are immediately preceded by 4 and immediately followed by 2 ?

3212472687427524221342747429747234

- (1) One                      (2) Two                      (3) Three  
(4) More than three      (5) None of these

4. How many digits are there in the following number series, which are immediately followed by its multiple ?

8329376549628736942

- (1) One                      (2) Two                      (3) Four                      (4) Three                      (5) Five

**Directions :- 5 to 7 :** Study the following letter number series and answer the questions that follow :-

AX3C4EFZ2YL567NMD4S8TR91PQ

In the above sequence; letters represent girls and numbers represent boys.

5. How many boys are there who are immediately preceded by a girl and immediately followed by a boy ?  
 (1) 2 (2) 4 (3) 3 (4) 5 (5) None of these
6. How many girls are there in the row who are having girls on both sides ?  
 (1) 5 (2) 2 (3) 4 (4) 6 (5) None of these
7. If it is decided to form groups of children in such a way that each group has two girls and one boy, how many groups at the most can be formed ?  
 (1) 5 (2) 10 (3) 9 (4) 8 (5) None of these

**Directions :- 8 to 10 :** Study the following English alphabet to answer the questions that follow :-

ABCDEFGHIJKLMNOPQRSTUVWXYZ

8. If counting from the left, the order of the first half is reversed, then which letter will be the second to the left of the fourteenth letter from your right ?  
 (1) O (2) C (3) P (4) D (5) B
9. Four of the following five are alike in respect to their position in the English alphabet and hence form a group. Which one does not belong to that group ?  
 (1) CFI (2) UXA (3) RUX (4) SVZ (5) LOR
10. Which of the following will be tenth to the right of the tenth letter from your left ?  
 (1) U (2) F (3) T (4) C (5) None of these
11. If the letters of the word REPRESENTATION are arranged in the alphabetical order, which letter will be fifth from the left ?  
 (1) R (2) P (3) I (4) S (5) N
12. How many 5's are there in the following number series, which are immediately preceded by 3 and immediately followed by 8 ?  
 85378353563585438543215358865385  
 (1) One (2) Two (3) Three (4) Four (5) None of these
13. How many such 9's are there in the following number sequence, which are either immediately preceded by or immediately followed by an even number in the series ?  
 39549783921897315699516972  
 (1) One (2) Two (3) Three (4) Four (5) More than four

**Directions :- 14 to 18 :** Given below are two letter-digit-symbol series. Answer the questions referring to these series.

**Series I** :- 5 K 2 C E @ 3 U M < > # D Z

**Series II** :- \$ 7 1 I J + = Y 9 P 4 A 8 F N

14. What is the total number of groups formed by a 'letter immediately followed by a letter and immediately preceded by a digit in Series-I and a 'letter immediately followed by a digit and immediately preceded by a symbol' in Series-II ?  
 (1) 3 (2) 4 (3) 1 (4) 5 (5) None of these

15. If the first five letters in Series-I are replaced by the first five digits in Series-II in the same order starting from the left end, what will come in place of 'U' ?  
 (1) 1 (2) J (3) 4 (4) 9 (5) None of these
16. If all the symbols from Series-I and all the letters from Series-II are sorted and arranged alternately from the left end, starting with a symbol, which is the eighth element from the left ?  
 (1) < (2) > (3) I (4) (5) P
17. A new series is formed by taking the first seven elements from Series-I and the last eight elements from Series-II in the same order, and each letter in the new series is replaced by its succeeding letter in the alphabet and each digit is replaced by its preceding digit, symbols remaining the same. Which element is eighth to the right of the thirteenth element from the right end ?  
 (1) 4 (2) 3 (3) 5 (4) B (5) None of these
18. Starting from the left end and following the given order, if a group of two elements is formed by taking digits from Series-I and letters from Series-II, which of the following represents the last group so formed ?  
 (1) 5 I (2) 2 J (3) 5 J (4) 3 Y (5) None of these

**Directions :- 19 23 :** Avinash, Meenal and Rishi are in control of the following series respectively.

**Avinash** :- 3 \$ P < @ Q A B = 7 C 2 9  
**Meenal** :- ! 8 % E ; Y 1 > ? D F G #  
**Rishi** :- I 4 K + C N 5 M \ 6 H Z

19. If from each of these series amongst letters/numbers/symbols, the one having the highest members are sorted out and then arranged in the ascending order on the basis of number of elements, then which of the following will indicate the correct order ?  
 (1) Avinash's letters, Meenal's symbols, Rishi's symbols.  
 (2) Avinash's symbols, Meenal's letters, Rishi's letters.  
 (3) Avinash's letters, Meenal's symbols, Rishi's letters.  
 (4) Avinash's symbols, Rishi's symbols, Meenal's letters.  
 (5) None of these.
20. If a 'digit which is immediately followed by a symbol' from Avinash's series, a 'symbol which is immediately followed by a letter', a 'symbol which is immediately followed by a digit from Meenal's series and a 'letter immediately preceded by a digit' from Rishi's series are selected, what will be the total number of such groups so formed ?  
 (1) 5 (2) 7 (3) 2 (4) 8 (5) 10
21. Which of the following statements is **NOT** true ?  
 (1) The total number of digits which are immediately followed by symbols from Avinash's series are less than that in Meenal's series.  
 (2) The total number of letters which are immediately preceded by symbols from Meenal's series are greater than that in Rishi's series.  
 (3) The total number of letters which are immediately followed by symbols from Rishi's series are greater than that in Avinash's series.  
 (4) The total number of letters which are immediately preceded by a digit from Avinash's series are equal to that in Rishi's series.  
 (5) None of these.