

# LETTER SERIES IN REASONING

## LETTER SERIES

The reasoning section of almost every competitive examination contains questions on Letter Reasoning. In this topic, questions are asked relating to positions of English alphabets. This topic is very important from exam point of view. So you need to memorize the positions of the alphabets so that you can handle each and every question based on this topic. Let us discuss various types of Letter reasoning:

1. **THE ALPHABET:** The English alphabet contains 26 letters, as given below:

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

From A to M, the alphabet completes the first 13 letters that is the first half, while the second half starts from 14<sup>th</sup> letter that is it starts from N and ends at Z.

(First Alphabetical Half) A to M  $\Rightarrow$  1 to 13

(Second Alphabetical Half) N to Z  $\Rightarrow$  14 to 26

2. **Concept of EJOTY:** The positions of alphabets can be remembered with the help of this simple concept, you can easily find out the position of any letter without much effort. But it is advisable that you learn the positions of different letters in the alphabet.

E	J	O	T	Y
5	10	15	20	25

For example, we are asked to find the 24<sup>th</sup> letter from the left side of the alphabet. We already know that the 25<sup>th</sup> letter from the left-hand side is Y, now we need to find letter before Y and that is X. By using this simple method, we can easily find out the position of any letter in the alphabet. Memorizing the positions & sequence of letters is a basic to solve any questions of this type, so you should try to memorize these positions. For this particular reason, you should practice EJOTY. Write down the names of ten of your friends & do as given below:

Let us take an example of name RAVI. With the help of EJOTY, we know that the letter R stands for number 18, A stand for 1, V stands for 22, I stands for 9. Adding all these numbers, we get  $(18+1+22+9)$ . This is a very good way to remember the positions of all the letters in the alphabet.

3. **Positions of letters from Right Hand Side (RHS):** Many a times we get questions in the tests that ask us the position of a letter from the right hand side. Although we are in a habit of counting from the left side of the alphabet & not from the right hand side of the alphabet. We are discussing this by taking an example and then we will make a mathematical formula.

Suppose there is a row of 8 persons in which a person is standing 5th from left. Let's find out his/her position from the right side.

I	I	I	I	I	I	I	1
1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>

You can see that the person who was standing fifth from the left hand side is placed fourth from the right side. Suppose there are 'n' persons, the order can be horizontal (from left to right) or vertical (from top to bottom) and if the position of a person is given which is rth from left then his position from right will be  $(n+1-r)$ . Likewise this concept can also be used if their sitting order is vertical. Sum of positions from left and from right will always be  $(n+1)$ . As given in the above mentioned example there are 8 persons, position of 5th person from left will be 4th  $(8+1-5)$  from right. Sum of both the positions is  $(4 + 5) = 9$ . If we are dealing with letters & we are given the position of any letter from either side, we need to add 1 more to the total number of letters & then subtract the position from left side to get its position from the right side.

For instance, let us find the position from right side of a letter, which is the 10<sup>th</sup> from left side.

A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	2	3	4	5	6	7	8	9	10	11	12	13	14
O	P	Q	R	S	T	U	V	W	X	Y	Z	from LHS	
15	16	17	18	19	20	21	22	23	24	25	26	from RHS	

# LETTER SERIES IN REASONING

As you can see, the 10<sup>th</sup> letter from the left hand side of the alphabet is J, which is 17<sup>th</sup> letter (26+1-10) from the right hand side of the alphabet. We did this operation by adding 1 to the total number of letters (26 + 1 = 27) and then subtracting 10 from it. This same logic is to be applied if we have given an initial right position and we need to find the position from the left side, or we have given initial position from top and we have to calculate position from bottom and vice-versa

4. **Finding the central symbol/letter/digit:** Many a times the question asks the middle letter/digit in the sequence given e.g. find the middle letter between the 12<sup>th</sup> letter and the 20<sup>th</sup> letter from the left hand side of the alphabet.

A	B	C	D	E	F	G	H	I	J	K	L	M
1	2	3	4	5	6	7	8	9	10	11	12	13
→												
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
14	15	16	17	18	19	20	21	22	23	24	25	26
→												

You can see that there are 7 letters between these 2 positions i.e. M, N, O, P, Q, R and S. We know that the midpoint of 7 items is the 4<sup>th</sup> item from either of the sides, whether counted from the right hand side of the alphabet or the left hand side of the alphabet. It comes out to be P, which is the correct answer in this particular case. But so much effort is not needed in solving such questions. In these type of questions, if the two different positions are given from the same side (i.e. either both are from the left hand side of the alphabet or both are from the right hand side of the alphabet), we can simply add up the 2 different positions from the same side, get their simple average and thus, the correct answer. In this particular case, the two positions are 12 and 20 from the left hand side of the alphabet. Adding and then averaging them, we get 16. Recollecting the EJOTY formula that we discussed earlier, we come up with the letter which is 16th from left side (after O) is P. The same process can be applied if we are given a case in which both the positions are counted from the right hand side of the alphabet. Remember, the answer we get will be from the same from both sides. Let's make this clearer by discussing an illustration.

Consider a scenario in which we have to find the mid-point between the 11<sup>th</sup> and the 17<sup>th</sup> letter from the right hand side of the alphabet. Adding the two positions, we get total as 28. The average of these two numbers is therefore 14. So, the mid-point is 14th from the right hand side of the alphabet (the same as the sides given in the question). Now we will convert this position into a position from the left hand side of the alphabet. Applying the logic which we had applied earlier, we will subtract 14 from 27 and get the answer- 13<sup>th</sup> from the left hand side of the alphabet, which is M. You can verify this answer by looking up the above alphabet.

## 5. Fill in the blank Series

These types of series consist of small letters which follow a specific pattern or series. Some spaces are left blank in between the series given. We have to fill in the blanks from given options to make a pattern. This can be clearly explained by this illustration:

Illustration: pq\_\_ qpp\_\_ pq\_\_

1. ppppp      2. Ppqpp      3. Ppqpq      4. qppqq

Sol: In order to solve these kinds of series, we should fill the given blanks by taking each option one by one & see where it forms a logical pattern. When you try to fill the first option, it becomes pqppqppppppqp. It does not result into any particular logical pattern. If you fill the second option you get pqp/pqp/pqp/pqp. It has been separated by the symbol “/” for your better understanding. Now, this becomes a pattern of writing pqp again & continuously. So, the second option becomes the correct answer to this given question.

# LETTER SERIES IN REASONING

1. SCD, TEF, UGH, \_\_\_\_, WKL

A. CMN

B. UJI

C. VIJ

D. IJT

**Answer:** Option C

**Explanation:**

There are two alphabetical series here. The first series is with the first letters only: STUVW. The second series involves the remaining letters: CD, EF, GH, IJ, KL.

2. B2CD, \_\_\_\_, BCD4, B5CD, BC6D

A. B<sub>2</sub>C<sub>2</sub>D

B. BC<sub>3</sub>D

C. B<sub>2</sub>C<sub>3</sub>D

D. BCD<sub>7</sub>

**Answer:** Option B

**Explanation:**

Because the letters are the same, concentrate on the number series, which is a simple 2, 3, 4, 5, 6 series, and follows each letter in order.

3. FAG, GAF, HAI, IAH, \_\_\_\_,

A. JAK

B. HAL

C. HAK

D. JAI

**Answer:** Option A

**Explanation:**

The middle letters are static, so concentrate on the first and third letters. The series involves four segments. The first and third segments are in alphabetical order: F, G, H, I, J. The second and fourth segments are static: A, A, I, A. The first segment begins with a new letter.

4. ELFA, GLHA, ILJA, \_\_\_\_, MLNA

A. OLPA

B. KLMA

C. LLMA

D. KLLA

**Answer:** Option D

**Explanation:**

The second and forth letters in the series, L and A, are static. The first and third letters consist of three-letter segments.

5. CMM, EOO, GQQ, \_\_\_\_, KUU

A. GRR

B. GSS

C. ISS

D. ITT

**Answer:** Option C

**Explanation:**

The first letters are in alphabetical order with a letter skipped in between each segment: C, E, G, I, K. The second and third letters are repeated; they are also in order with a skipped letter: M, O, Q, S, U.

6. ZA<sub>5</sub>, Y<sub>4</sub>B, XC<sub>6</sub>, W<sub>3</sub>D, \_\_\_\_

A. E<sub>7</sub>V

B. V<sub>2</sub>E

C. VE<sub>5</sub>

D. VE<sub>7</sub>

**Answer:** Option D

**Explanation:**

There are three series to look for here. The first letters are alphabetical in reverse: Z, Y, X, W, V. The second letters are in alphabetical order, beginning with A. The number series is as follows: 5, 4, 6, 3, 7.

7. QPO, NML, KJI, \_\_\_\_, EDC

A. HGF

B. CAB

C. JKL

D. GHI

**Answer:** Option A

**Explanation:**

This series consists of letters in a reverse alphabetical order.

8. JAK, KBL, LCM, MDN, \_\_\_\_

A. OEP

B. NEO

C. MEN

D. PFQ

**Answer:** Option B

**Explanation:**

This is an alternating series in alphabetical order. The middle letters follow the order ABCDE. The first and third letters are alphabetical beginning with J. The third letter is repeated as a first letter in each subsequent three-letter segment.

9. BCB, DED, FGF, HIH, \_\_\_\_

A. JKJ

# LETTER SERIES IN REASONING

C. IJI

D. JHJ

**Answer:** Option A

**Explanation:**

This series consists of a simple alphabetical order with the first two letters of all segments: B, C, D, E, F, G, H, I, J, K.  
The third letter of each segment is a repetition of the first letter.

**10.  $P_5QR, P_4QS, P_3QT, \dots, P_1QV$**

A. PQW

B. PQV<sub>2</sub>

C. P<sub>2</sub>QU

D. PQ<sub>3</sub>U

**Answer:** Option C

**Explanation:**

The first two letters, PQ, are static. The third letter is in alphabetical order, beginning with R. The number series is in descending order beginning with 5.

**11. QAR, RAS, SAT, TAU, \dots**

A. UAV

B. UAT

C. TAS

D. TAT

**Answer:** Option A

**Explanation:**

In this series, the third letter is repeated as the first letter of the next segment. The middle letter, A, remains static. The third letters are in alphabetical order, beginning with R.

**12. DEF, DEF<sub>2</sub>, DE<sub>2</sub>F<sub>2</sub>, \dots, D<sub>2</sub>E<sub>2</sub>F<sub>3</sub>**

A. DEF<sub>3</sub>

B. D<sub>3</sub>EF<sub>3</sub>

C. D<sub>2</sub>E<sub>3</sub>F

D. D<sub>2</sub>E<sub>2</sub>F<sub>2</sub>

**Answer:** Option D

**Explanation:**

In this series, the letters remain the same: DEF.

The subscript numbers follow this series:

111, 112, 122, 222, 223, 233, 333,

**Find the letter in place of question mark (?) In the series given below:**

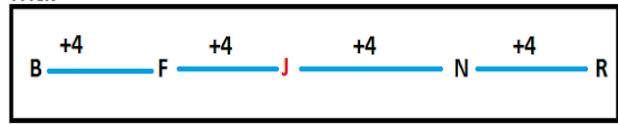
**Q1. B, F, \dots, N, R**

- a) G
- b) K
- c) J
- d) L
- e) None of The Above

**Solution :-**

**Option C**

**Trick-**



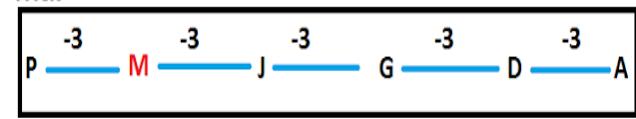
**Q2. P, \dots, J, G, D, A**

- a) Q
- b) N
- c) K
- d) M
- e) None of The Above

**Solution :-**

**Option D**

**Trick-**



**Q3. \dots, E, G, J, N**

- a) A
- b) B
- c) D
- d) Z
- e) None of The Above

**Solution :-**

**Option C**

**Trick-**



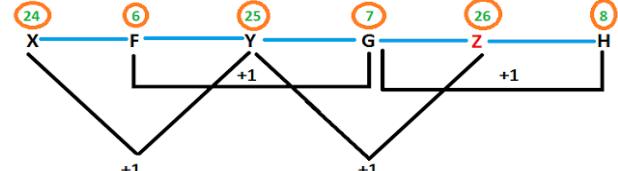
(Numbers in Circles shows the position of alphabets)

**Q4. X, F, \dots, Y, G, \dots**

- a) Z
- b) A
- c) B
- d) Y
- e) None of The Above

**Solution :-**

**Option A**



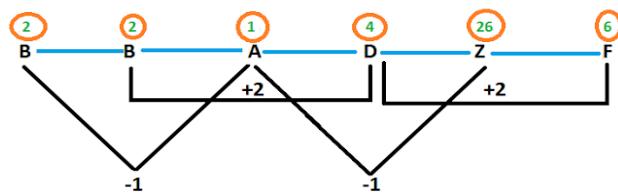
**Q5. \dots, B, \dots, F, B, \dots, A, \dots, D, \dots**

- a) B
- b) A
- c) Z
- d) C
- e) None of The Above

**Solution :-**

**Option C**

# LETTER SERIES IN REASONING



**Q6.** LMD, MKG, NIJ, .....

- a) PKM
- b) MGO
- c) LGM
- d) OGM
- e) None Of The Above

Solution :-

Option D

First Letter :	L	+1	M	+1	N	+1	O
Second Letter :	M	-2	K	-2	I	-2	G
Third Letter :	D	+3	G	+3	J	+3	M

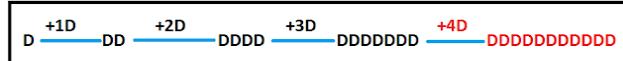
**Q7.** D, DD, DDDD, DDDDDDD, .....

- a) DDDDDDDDDDD
- b) DDDDDDDDDDD
- c) DDDDDDD
- d) DDDDDDDDDDDDD
- e) None Of The Above

Solution :-

Option D

Trick -

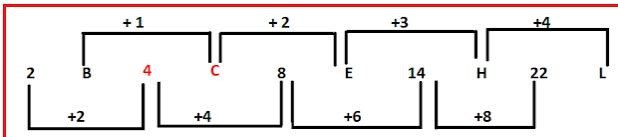


**Q8.** 2B, ....., 8E, 14H, 22L

- a) 4C
- b) 4D
- c) 6E
- d) 9F
- e) None Of The Above

Solution :-

Option A

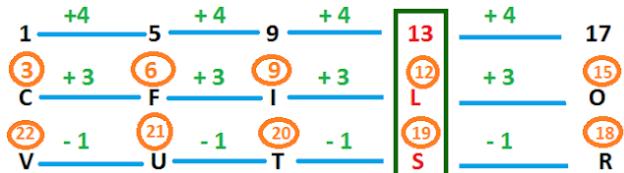


**Q9.** 1CV, 5FU, 9IT, ....., 17OR

- a) 11LS
- b) 14JS
- c) 15JS
- d) 13LS
- e) None Of The Above

Solution :-

Option D

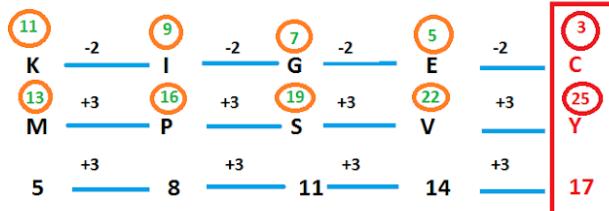


**Q10.** K M 5, 1 P 8, G S 11, E V 14,

- a) C Y 17
- b) B Y 17
- c) B X 17
- d) C Z 17
- e) None Of The Above

Solution :-

Option A



# LETTER SERIES IN REASONING

## PRACTICE QUESTIONS

Directions (1-6): Which one set of letters when sequentially placed at the gaps will complete the given letter series?

Q1. ab \_ accab \_ acc \_ bba \_ cabba \_ c

- (a) bcabb
- (b) acbcc
- (c) bbacc
- (d) bcbba

Q2. xx \_ yz \_ xyz \_ xx \_ yyz \_ z

- (a) yyxyz
- (b) yzxyz
- (c) yzyyz
- (d) yxxyz

Q3. nc - dcn - cddc - n - ddccnn - d

- (a) cdndc
- (b) dnncn
- (c) dcndd
- (d) nccdn

Q4. a b \_ c a b b \_ a b b \_ a b \_ c

- (a) aabc
- (b) baab
- (c) accb
- (d) bccb

Q5. a b c \_ b c \_ a b c c \_ a \_ c c c c

- (a) accb
- (b) abbc
- (c) bcca
- (d) accc

Q6. a - c a - ab - a - ab - ab

- (a) bbabc
- (b) babaa
- (c) aabbb
- (d) bbcbc

Directions(7-11): In each of the following questions, a series is given, with one term or two missing. Choose the correct alternative from the given ones that will complete the series.

Q7. DCXW, FEVU, HGTS, .....

- (a) JKPO
- (b) JIRQ
- (c) CBYZ
- (d) JMRS

Q8. AZ, CX, EV, GT, ?, KP, ?

- (a) IR and NM
- (b) IR and MN
- (c) RI and NM
- (d) RI and MN

Q9. YZ, VYZ, SYZ, PYZ, ?

- (a) LYZ
- (b) TYZ
- (c) XYZ
- (d) MYZ

Q10. AB, DEF, HIJK, ? STUVWX

- (a) MNOPQ
- (b) LMNOP
- (c) LMNO
- (d) QRSTU

Q11. nd, sy, xt, co, hj, ?

- (a) mp
- (b) mq
- (c) me
- (d) mf

Q12. Which letter amongst the following alphabet is the 8th letter to the right of 17th letter from right?

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  
(a) R

- (b) M
- (c) L
- (d) S

Directions (13-15): Study the letter-series given below and answer the questions that follow:

H D Y S M W N B Q P O C R T B L Z V E G U F

Q13. Which two neighbours in the given arrangement are farthest in the alphabetical order?

- (a) B and Q
- (b) D and Y
- (c) U and F
- (d) V and E

Q14. Which letter has the same neighbours as in the alphabetical order though they have changed places?

- (a) M
- (b) N
- (c) O
- (d) P

Q15. Which three letters have the same distance as they have in the alphabetical order though they have changed places?

- (a) HMP
- (b) NQZ
- (c) QOE
- (d) YLF

## Answers

Q1.

Ans.(c)

Sol. The pattern of series is 'abb/acc/abb/acc'

Q2.

Ans.(b)

Sol. The pattern of series is xxxyzz/xyz/xxxxyyzz.

Q3.

Ans.(b)

Sol. The pattern of series is ncddcn/ncddcn/ncddcn/ncd

Q4.

Ans.(d)

Sol. The pattern of series is abbc/ abbc/ abbc/ abbc

Q5

Ans.(a)

Sol. The pattern of series is abc/abcc/abccc/abcccc

Q6.

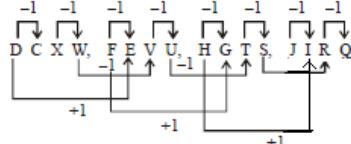
Ans.(d)

Sol. The pattern of series is abcab/ abcab/ abcab

Q7.

Ans.(b)

Sol.



Q8.

Ans.(b)

Sol.

$$A \xrightarrow{+2} C \xrightarrow{+2} E \xrightarrow{+2} G \xrightarrow{+2} I \xrightarrow{+2} K \xrightarrow{+2} M$$

$$Z \xrightarrow{-2} X \xrightarrow{-2} V \xrightarrow{-2} T \xrightarrow{-2} R \xrightarrow{-2} P \xrightarrow{-2} N$$

Q9.

Ans.(d)

Sol.

## LETTER SERIES IN REASONING

V Y Z  
-3 ↓  
S Y Z  
-3 ↓  
P Y Z  
-3 ↓  
M Y Z

Q10.

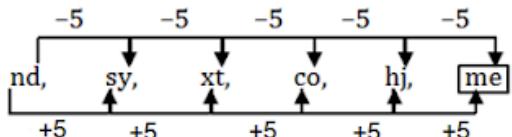
Ans.(a)

Sol. The number of letters in the terms goes on leaving one letter after each set and the next set has one letter more than the previous one.

Q11

Ans.(c)

Sol.



Q12.

Ans.(a)

Sol.  $17-8 = 9$

So 9th letter from right is "R"

Q13.

Ans.(b)

Sol. Clearly, D and Y are neighbours in the given series and are separated by the maximum number of letters i.e. 20 in the English alphabet.

Q14.

Ans.(d)

Sol. P has O and Q as its neighbours in the given series as well as in the English alphabet.

Q15.

Ans.(d)

Sol. There are 12 letters between L and Y and 5 letters between F and L in the given series as well as in the English alphabet.