LOGICAL REASONING

MODULE 2 – LETTER SERIES

1. In the question below, three incomplete rows of letters/numerals are given which correspond to each other in some way. Find the letters/numerals which come in the vacant places marked by "?"

-	A	D	A	C	B	-	-	B	D	C	C
1	3	-	-	1	2	4	2	-	-	-	-
a	-	-	b	-	-	c	d	?	?	?	?

(a) a,c,d,d (b) d,a,c,c (c) c,a,d,d **(d) d,c,a,a**

Solution:

If we look vertically through the columns, you would be able to see that:

i. The capital letter C, corresponds to the digit 1, which in turn corresponds to the small letter a.

ii. The capital letter B, corresponds to the digit 2, which in turn corresponds to the small letter d.

iii. The capital letter D, must be corresponding to the digit 4, which in turn corresponds to the small letter c.

Hence, the correct sequence for the question marks would be d,c,a,a. Option (d) is correct.

2. Select the correct option to fill in the blank space/s:

c_bba_cab_ac_ab_ac

(a) b,c,b,a,c (b) c,a,b,c,b (c) a,c,c,b,c **(d) a,c,b,c,b**

Solution:

The best way to check a question like this is to fit in the four options in the blanks and check the full series. The following series get built when we do so for each of the options:

Option (a) – cbbbaccabbacaabcac

Option (b) – ccbbaacabbaccabbac

Option (c) – cabbaccabcacbabcac

Option (d) – cabbaccabbaccabbac

A closer look at the four options shows us that the fourth option has a pattern which goes as follows: cab bac cab bac cab bac. None of the other options shows any consistency in its pattern. Hence, Option (d) is the correct answer.

3. Find the missing alphabet.

H	C	?
B	F	E
P	R	T

(a) Y (b) O **(c) D** (d) G

Solution:

A quick look at the placing of the alphabets from A to Z as 1 to 26 shows us that the given figure will look as follows:

8	3	?
2	6	5
16	18	20

It is obvious once we see this that the number in the third row is simply the product of the numbers in the first two rows above it as 8 x 2 = 16, 3 x 6 = 18. Hence 4 x 5 = 20 and the missing alphabet is 4^{th} alphabet in the alphabetical order. Thus, the missing alphabet is D and option (c) is the correct answer.

4. Select the correct option to fill in the blank space/s:

D_F_DEE_D_EF_DE_F

(a) EFFDED (b) EFFDDF **(c) EFFDFE** (d) None of these

Solution:

Options (a) and (b) do not make any sense if they are put in the blanks of the series sequence: DEFFDEEFDDEFEDEDF using the option (a) shows no consistent pattern.

Similarly the sequence DEFFDEEFDDEFDDEFF got by using the option (b) also shows no consistent pattern and hence can be rejected.

The sequence formed using option (c) is:

DEFFDEEFDDEFFDEEF. This sequence makes sense if you were to break the sequence into 3 terms at a time. You will get the sequence as: DEF – FDE – EFD – DEF – FDE – EF

In the above sequence it can be seen that there is always a sequential order in which the three letters appear and also the second group of 3 alphabets starts from the last letter of the first group of 3 alphabets. And this trend continues uninterrupted throughout the sequence. Hence, we can mark option (c) as the correct answer.

5. Complete the following series by replacing the ?:

TBLD, VEPI, XHTN, ?

(a) ZJVP (b) ZVJP (c) ZKXS (d) ZKXP

Solution:

The four series that are running in the words are:

1. First letter of every word: T, V, X. So, the missing letter in Z (as there is one letter missing between T and V, so also between V and X). Thus, after X we would skip Y and use Z as the first letter of the last word.

2. Second letter of every word: B, E, H. So, the missing letter is K (as there are two letters missing between B and E, so also between E and H). Thus, after H we would skip I and J and use K as the second letter of the last word.

3. Third letter of every word: L, P, T. So, the missing letter is X (as there are three letters missing between L and P, so also between P and T). Thus, after T we would skip U, V and W and use X as the third letter of the last word).

4. Similarly D-I-N-S (Skip 4 letters).

Thus, the correct answer would be ZKXS. Option (c) is correct.

6. What is the next letter in the series?

U, F, Q, J, M ,N, ?

(a) I (b) T (c) O (d) M

Solution:

There are two series intertwined in the given series.

F – J – N (skip 3 alphabets)

U – Q – M (skip 3 alphabets in the opposite order).

The next letter would depend on the second series above. After M, the 3 letters to be skipped are L, K, J and hence ‘I’ should be the next letter in the series. Option (a) is correct.

7. Replace the question mark with the right option.

BZ, HT, NN, ?, ZB

(a) LF (b) SX **(c) TH** (d) TI

Solution: For the first alphabet add 6 to the position number to get the next first alphabet of the next element of the series and for the second alphabet subtract 6 from the position and we'll get the required number. Option (c) is correct.

8. The letters skipped between adjacent letters is in the order of 1, 2, 3, 4… Which alternative follows this rule?

(a) EFJNS (b) EGJOS **(c) EGJNS** (d) EGJNT

Solution:

EGJNS follows the skipping of 1, 2, 3 & 4 letters respectively as we can see in: EFGHIJKLMNOPQRS

9. Find out the missing term: ABCDEFG, GABCDEF, FGABCDE, ?

(a) EFGABCD (b) GABCDEF (c) EFGABCDE (d) FGABCDE

Solution:

The next term is formed by removing the last alphabet in the previous term and attaching it to the first alphabet of the next. Hence, the next term in the series would be EFGABCD. So, the answer is option (a)

10. What is the next term in the following series?

ZYXWTSRQNMLK

(a) I (b) G **(c) H** (d) J

Solution:

The given series starts with the last 4 alphabets of the English language and then gives a break of 2 alphabets, followed by the next four alphabets and so on. Hence, the next term in the series would be H (after skipping J and I). So option (c) is the answer.

11. Which letter should be the tenth letter to the left of the ninth letter from the right, if the first half of the alphabets of English is reversed?

(a) D **(b) F** (c) E (d) I

Solution:

We are looking for the 19^{th} letter from the right in the series:

MLKJIHGFEDCBANOPQRSTUVWXYZ.

The letter would be F as can be counted from the above series. Option (b) is correct.

12. What is the next term in the following series? ABE, BCF, CDG, DEH, EFI, _____

(a) FGK **(b) FGJ** (c) FGL (d) None of these

Solution:

The first two letters in the terms are continuous and it has a pattern - AB, BC, CD, DE, EF and hence the next term should be FG

The third letter in the terms are continuous and it has a pattern – E, F, G, H, I and hence the next term should be J.

Hence the answer is option (b).

13. Find the missing term: ABXW, EFTS, ?, MNLK

(a) IJOP **(b) IJPO** (c) JIOP (d) JIPO

Solution:

First and second terms are in alphabetical order, while third and fourth terms are in reverse order. Therefore, missing term is IJPO. Hence the answer is option (b).

14. Find the next term in the series: R, K, F, C, ?

(a) A (b) D (c) E (d) I

Solution:

R^{-7}, K^{-5}, F^{-3}, C, _
The values that are subtracted are consecutive prime numbers in decreasing order.
Hence, the next letter in the series is C - 2 = A.

15. Find the missing term: PKC, SPF, XSK, AXN, , IFV

(a) CAQ (b) FCS **(c) FAS** (d) CFS

Solution:

The given series is a mixed series. Pattern for the first letter:

P+3, S+5, X+3, A+5, F+3, I

Pattern for the second letter:

K+5, P+3, S+5, X+3, A+5, F

Pattern for the third letter:

C+3, F+5, K+3, N+5, S+3, V

Hence, the missing group is FAS.

16. Find the next terms in the following series:

N, O, M, P, L, Q, K, R, _ _ _

(a) J, S, I (b) G, S, I (c) G, S, J (d) G, T, J

Solution:

Odd Series: N, M, L, K, J, I….

Even Series: O, P, Q, R, S, T….

So Answer will be J, S, I

17. What is the next term in the following series: O, T, T, F, F, S, S, ____

(a) P (b) T **(c) E** (d) R

Solution:

One

Two

Three

Four

Five

Six

Seven

Eight

Observe the first letter of each word.

18. Find the next letter in the following sequence: y, w, v, t, r, p, n, ?

(a) m **(b) l** (c) k (d) j

Solution:

(y w) (v t) (r p) (n ?)

One letter gap

y-w

v-t

r-p

n-l

19. The word CONGRATULATIONS is first written in reverse order and then written in alphabetical order. The letters remaining in the same position are?

(a) 0 **(b) 1** (c) 2 (d) 3

Solution:

CONGRATULATIONS

Reverse Order → SNOITALUTARGNOC

Alphabetical Order → AACGILNNOORSTTU

"R" is the only letter remaining in same position

20. Complete the series: E-5, G-7, I-9, K-11, ?

(a) L-13, N-14 (b) L-12, M-14 **(c) M-13, O-15** (d) K-12, M-14

Solution:

Letters and its corresponding alphabetical position. Hence, option (b) is correct.

HOME WORK

21. Choose the option that completes the given series:

A, CD, GHI, ?, UVXYZ

(a) LMNO (b) MNO (c) NOPQ **(d) MNOP**

Solution:

The pattern is 1 letter, 2 letter, 3 letter,…. (i.e. A, CD, GHI, ….)

The missing pattern in between the given letters is 1 letter missing, 2 letter missing, 3 letter missing, …. (i.e. B, EF, JKL, ….)

Hence, the missing term is MNOP

22. Choose the option that completes the given series:

AC, FH, KM, PR, ?

(a) UW (b) VW (c) UX (d) TV

Solution:

The missing pattern between the given letters: 1 letter missing (i.e. A**B**C, F**G**H, K**L**M, P**Q**R…)

The missing pattern between the given terms: 2 letters missing (i.e. AC, **DE**, FH, **IJ**, KM, **NO**, PR…)

Hence, the answer is UW. Option (a) is the correct answer.

23. Find the next letter in the given series:

H, I, K, N, ?

(a) P (b) Q (c) O **(d) R**

Solution:

The missing pattern is: **H** next letter **I** 1 letter missing **K** 2 letter missing **N** 3 letter missing **R**

Hence, the answer is R. Option (d) is the correct answer.

24. Find the next letter in the given series:

R, U, X, A, D, ?

(a) E (b) F **(c) G** (d) H

Solution:

The missing pattern is: 2 letters missing in between the given letter series. Hence, the next letter should be two letters after D, which is G

25. Find the next letter in the given series:

A, D, J, S, ?

(a) D **(c) E** (c) F (d) X

Solution:

The missing term is E. Pasttern: 3, 6, 9 etc., are added to each the place value of each alphabet