REASONING

PREFACE

This book is a unique empirical resource created to provide comprehensive and easy to understand **REASONING** concepts and questions.

We allow you the prospect to gain applied experience with real-world data in areas of pressing importance to **Analytical, Verbal and Non - Verbal Reasoning**. The book is outlined with basic & important concepts to begin with. At the same time, the book includes a number of pioneering and collaborating features designed to augment student learning. Then embarks the journey of questions in the form of **multiple choice (MCQs).** The book's major role is to summarize, crystallize, enhance and give a forward orientation to the conceptual methods taught in the said curriculum, with projections to future exam requirements.

Unlike traditional textbooks, our texts are developed and reviewed by generous educators to ensure they are readable, accurate, and meet the scope and sequence requirements of today's students and curriculum needs. We hope this book will help the students, by exposing them to a new kind of learning and excellence.

"You are never given a dream without being given the power to accomplish it".

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1 ALPHABET TEST

The letters of English alphabet can be written as :

	A	B	C	D	E	F	G	H	I	J	K	L	M
From left side	1	2	3	4	5	6	7	8	9	10	11	12	13
From right side	26	25	24	23	22	21	20	19	18	17	16	15	14

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
From left side	14	15	16	17	18	19	20	21	22	23	24	25	26
From right side	13	12	11	10	9	8	7	6	5	4	3	2	1

The sum of letter of English alphabet from left side & right side is 27.

Following formula is helpful in learning the order of letters of English alphabet.

E	J	O	T	Y
↓	↓	↓	↓	↓
5	10	15	20	25

Basically our left side is alphabet's left side and our right side is alphabet's right side.

QUESTIONS BASED ON ALPHABETS

Type - I

Ex.1 Arrange the following word according to English dictionary and which is third word among them.
HAT, HEAT, HEAD, HEARD, HATE

Sol. According to English dictionary arrangement is
HAT, HATE, HEAD, HEARD, HEAT
So third word is 'HEAD'

Type - II

Ex.2 In the word 'APPLE' how many such pair of letters are there which have exactly same number of letter between them as in the English alphabet.

Sol.
A   P   P   L   E
1   16   16   12   5

Only one such pair i.e. A – E

Ex.3 In the word 'NOVEL' how many such pair of letters are there which have exactly same number of letter between them as in the English alphabet.

Sol.
N   O   V   E   L
14   15   22   5   12

2 pairs N – O and O – L.

Type - III

Ex.4 In the number 7526984, how many digits will be as far away from the beginning of the number if digits are arranged in ascending order as they are in the number ?

Sol.
Given number   :   7   5   2   <u>6</u>   9   <u>8</u>   4
Ascending order :   2   4   5   <u>6</u>   7   <u>8</u>   9

Ex.5 If each of the odd digits in the number 72456 is decreased by 1 and each of the even digits is increased by 1, then which of the following will be the sum of the digits of the new number ?

Sol. The new number formed is 63547
Required sum = (6 + 3 + 5 + 4 + 7) = 25

Ex.6 The positions of the second and the eight digits of the number 39128564 are interchanged. Similarly, the positions of the fourth and the fifth digits are interchanged. The positions of the first and the sixth digits are interchanged and the positions of the third and the seventh digits are interchanged. Which of the following will be the third digit to the left of 3 after the rearrangement ?

Sol. The new number formed after rearrangement is
5 4 6 8 2 3 1 9.
Clearly, the third digit to the left of 3 is 6.

Type - IV

Ex.7 How many meaningful words can be made from the 2nd, 5th, 9th and 10th letters of the word 'ORIENTATION'

Sol. 2nd letter – R,   5th letter – N,
9th letter – I,   10th letter – O
Only one meaningful word is possible i.e., IRON.

Ex.8 How many meaningful words can be formed from the 2nd, 4th, 8th & 10th letter of word 'CONSIDERATION'

Sol. 2 → O   4 → S   8 → R   10 → T
Only one meaningful word is possible i.e. 'SORT'

Type - V

Ex.9 If the 1st and 2nd, 3rd and 4th letter and so on of the word 'REPRESENTATION' are interchange then which is the 7th letter from the right end.

Sol.

R	E	P	R	E	S	E
N	T	A	T	I	O	N

E	R	R	P	S	E	N
E	A	T	I	T	N	O
7	6	5	4	3	2	1 ← Right end

7th letter from right end is 'E'.

Type - VI

Ex.10 In the English alphabet which is the 4th letter to the left of the 11th letter from the left.

Sol. K – 4 = 11 – 4 = 7

From left side i.e. A to Z, G is the 7th letter.

Ex.11 Which letter is the middle of 8th letter from left side & 9th letter from right end in English alphabet.

Sol. It's 'M'

Trick → let $\dfrac{27 - (\text{Left end} + \text{Right end})}{2} = k$

Now middle letters is k & position from left end or position from right end

$k = \dfrac{27 - (9 + 8)}{2} = 5$

Now, middle letter is 5 + 8 = 13th letter from left i.e. 'M'.

Type - VII

Ex.12 If the first half of English alphabet is written in reverse order and rest are written in same order. Then which is the 6th letter to the left of 17th letter from the left end.

Sol.

M L K J I H G F E D C B A / N O
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
P Q R S T U V W X Y Z
16 17

Q – 6 = 17 – 6 = 11
So 11th letter from left is C.

Type - VIII

Ex.13 In this type of question a mix-matched letter series is given -
D E F M P B M E F D E F M F E P M E F B M E P F
In the given series how many E's are there having M as a preceding & F as a succeeding letter.

Sol. Only 2 (M E F)

Ex.14 Which of the word cannot be formed from the given word -

(i) S U P E R I T E N D E N T
(a) P E R T I N E N T
(b) T E N E N T
(c) R E T E N T I O N
(d) D E N T I S T

Sol. RETENTION because it has letter 'O'

(ii) U N I V E R S I T Y
(a) N E V E R   (b) U N I T E
(c) V I R U S   (d) T R U E

Sol. NEVER has 2 E's

Ex.15 Which of the word can be formed from the given word.

(i) R E C R U I T M E N T
(a) C E M E N T E
(b) R T I R I M N T
(c) U N I T E
(d) T I G E R

Sol. U N I T E

EXERCISE

Directions (1 - 2) : Read the following letter sequence and answer the questions given below :

S H M F B W F Q P N J W V A E T X G O G K P Z R Y T L

1. Which letter is fourth to the left of 16th letter from your left?

(a) J   (b) G   (c) W
(d) V   (e) None of these

[3]

2. If the first fourteen letters are written in the reverse order which letter will be sixth to the left of twelfth letter from your right?

(a) F   (b) B   (c) W

(d) Q   (e) None of these

Directions (3 - 5) : Study the following letter number symbol sequence carefully and answer the questions given below :

B D 5 F E 3 8 $ M 2 I K * P T @ U 9 A 7 1 £ H J 4 Q 6

3. What should come in place of the question mark (?) in the following sequence ?

5E$, MIP, ?, 1HQ

(a) TUA   (b) TU7   (c) @ 91

(d) T91   (e) None of these

4. Which of the following is exactly in the midway between the eleventh from the left end and the 7th from the right end ?

(a) T   (b) @   (c) U

(d) P   (e) None of these

5. How many such digits are there in the above sequence which are immediately preceded as well as followed by digits ?

(a) None   (b) One   (c) Two

(d) Three   (e) More than three

Directions (6 - 10) : In each of the following questions, five words are given. Which of them will come in the middle if all of them are arranged alphabetically as in a dictionary ?

6. (a) Fraught   (b) Fray   (c) Fraud

(d) Franchise   (e) Frappe

7. (a) Generate   (b) Generalize   (c) Genepool

(d) Genealogist   (e) Generality

8. (a) Halt   (b) Hake   (c) Hairy

(d) Hair-net   (e) Hale

9. (a) Electric   (b) Elector   (c) Elect

(d) Electrode   (e) Electron

10. (a) Length   (b) Lenient   (c) Legacy

(d) Legal   (e) Legible

Directions (11 - 12) : Each of the following questions is based on the following alphabet series :

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

11. If the alphabet is written in the reverse order and every alternate letter starting with Y is dropped which letter will be exactly in the middle of the remaining letters of the alphabet ?

(a) M   (b) N   (c) O

(d) M or O   (e) None of these

12. Suppose the first and the second letters of the English alphabet changed places, also the third and the fourth, the fifth and the sixth, and so on. In the new alphabet series, thus formed which letter would be the 16th ?

(a) H   (b) K   (c) O

(d) M   (e) None of these

13. If in the English alphabet every third letter is replaced by the symbol (*), which of the following would be sixth to the left of the sixteenth element from the left ?

(a) G   (b) H   (c) T

(d) J   (e) None of these

14. If 1st and 26th, 2nd and 25th, 3rd and 24th and so on, letters of the English alphabet are paired, then which of the following pairs is correct ?

(a) GR   (b) DW   (c) IP

(d) EU   (e) None of these

15. If every alternative letter of English alphabet from B onwards (including B) is written in lower case (small letters) and the remaining letters are capitalized, then how will the second month of the second half of the year be written ?

(a) JuLy   (b) AuGuSt   (c) jUlY

(d) AUGUSt   (e) None of these

16. From the given alternatives select the word which can be formed using the letters given in the word.

L A C K A D A I S I C A L

(a) LACHESH   (b) DELICTS   (c) KIDDLED

(d) SCALD   (e) None of these

Directions (17 - 19) : If letters from A to M were written leaving space for one letter between every two letters, and then the remaining letters were inserted, beginning with N and ending the service with Z after, M, answer the following questions :

17. Which letter would be fourth to the right of the ninth letter from the left ?

(a) C   (b) F   (c) S

(d) G   (e) None of these

18. Which letter would be exactly between Q and X ?

(a) S   (b) T   (c) H

(d) W   (e) None of these

19. Which letter would be exactly in the middle of the nineteenth letter from the beginning and eighteenth from the end ?

(a) S   (b) T   (c) G

(d) H   (e) None of these

Directions (20 - 24) : If all the letters from A to Z were written as A_C_E_G_ upto Y, i.e. dropping each alternative letter, leaving blank spaces and then all the blanks were filled in with remaining letters in reverse order, i.e., A Z C X E V…. ending with B, answer the following questions :

20. Which letter is to the right of fifteenth letter from the left corner ?

(a) M   (b) N   (c) Q

(d) L   (e) None of these

21. Which letters are exactly in the middle of the nineteenth letter from the left and fifteenth letter from the right end?

(a) MN   (b) NO   (c) OL

(d) PM   (e) None of these

22. Which letter would be placed between H and F ?

(a) H   (b) J   (c) L

(d) U   (e) None of these

23. How many pairs of letters in the series are old neighbours from regular alphabetical order ?

(a) One   (b) Two   (c) Three

(d) Four   (e) None of these

24. Which letters would be to the right and left of R ?

(a) P and N   (b) R and T   (c) F and H

(d) K and I   (e) None of these

25. Study the following arrangement of the English alphabet and answer the questions given below :

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

Which letter is fifth to the right of the letter which is exactly in the middle of F and D ?

(a) D   (b) V   (c) A

(d) K   (e) None of these

26. In the given series of letters, how many A's are preceded and followed by A?

P A P A A P P A P A P P P P P P A P A A P P P A

(a) 0   (b) 2   (c) 3

(d) 4   (e) None of these

27. In the following series of letters how many P's are there which do not have 'Y' preceding them and also do not have T following them ?

Z Q S T P Y M N Q N Y T U V X Y P T A S P T Q Y S P T

(a) 1   (b) 2   (c) 3

(d) 5   (e) None of these

Directions (28 - 32) : Each of the following questions is based on the following alphabet series.

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

28. Which letter is midway between the eighteenth letter from the left end and tenth letter from the right end of the given alphabet ?

(a) No letter   (b) K   (c) Q

(d) R   (e) None of these

29. Which letter in the alphabet series is as far from K as T is from M ?

(a) M   (b) R   (c) O

(d) P   (e) None of these

30. Which letter will be seventh to the right of the third letter of the second half of the English alphabet ?

(a) V   (b) W   (c) X

(d) None   (e) Z

31. If the above alphabet are divided into two equal halves – from A to M and N to Z, which letter in the later half would be corresponding to the letter I ?

(a) V   (b) Q   (c) X

(d) W   (e) None of these

32. Which letter will be fifth to the left of the twentieth letter from the right end of the alphabet ?

(a) M   (b) N   (c) X

(d) B   (e) None of these

33. Which word cannot be formed by using the letters of FLOWERBED?

(a) WOLF   (b) LOWER   (c) FOLLOWER

(d) FREED   (e) None of these

34. How many pairs of letter are there in the word 'UNDERSTAND' which have same number of letter between them as in English alphabet (both forward & reverse direction).

(a) Six   (b) Two   (c) Three

(d) Seven   (e) None of these

35. How many pairs of letter are there in the word 'ACCOMPLISHED' which have same number of letter between them as in English alphabate (both forward & reverse direction).

(a) One   (b) Two   (c) Three

(d) Four   (e) None of these

36. How many pairs of letters are there in the word 'RELATIONSHIP' which have same number of letter between them as in English alphabet. (both forward & reverse direction)

(a) One   (b) Six   (c) Five
(d) Seven   (e) None of these

37. How many pairs of letter are there in the word 'PRODUCTION' which have same number of letter between them as in English alphabet? (both forward and reverse direction)

(a) One   (b) Two   (c) Three
(d) Four   (e) None of these

38. How many pairs of letter are there in the word 'PARACHUTE' which have same number of letter between them as in English alphabet? (both forward and reverse direction)

(a) Four   (b) Two   (c) One
(d) Three   (e) None of these

39. How many pairs of letter are there in the word 'HORIZON' which have same number of letter between them as in English alphabet? (both forward and reverse direction)

(a) One   (b) Two   (c) Three
(d) Four   (e) None of these

40. How many pairs of letter are there in the word 'CELLPHONE' which have same number of letter between them in English alphabet? (both forward and reverse direction)

(a) Four   (b) One   (c) Two
(d) Three   (e) None of these

41. How many pair of letter are there in the word 'PERPETUAL' which have same number of letter between them as in English alphabet.

(a) One   (b) Four   (c) Six
(d) Three   (e) None of these

42. From the given alternative words, select the word. Which can not be formed by using the letter of the word 'REFORMATION'.

(a) FORMAT   (b) REFRACT   (c) REFRAIN
(d) MOTION   (e) None of these

43. The positions of how many digits in the number 213659487 will remain same when the digits are arranged in ascending order ?

(a) None   (b) One   (c) Two
(d) Three   (e) Four

44. How many such digits are there in the number 13874526 each of which is as far away from the beginning of the number as when the digits are arranged in descending order within the number.

(a) One   (b) Two   (c) Three
(d) Four   (e) None of these

45. How many such digits are there in the number 6342598, which are as far away from the beginning of the number, as they will be when arranged in ascending order within the number?

(a) Two   (b) None   (c) Three
(d) Five   (e) One

46. The positions of the second and the eight digits of the number 30892574 are interchanged. Similarly, the positions of the fourth and the fifth digits are interchanged. The positions of the first and the sixth digits are interchanged and the positions of the third and the seventh digits interchanged. Which of the following will be the third digit to the left of 3 after the rearrangement?

(a) 2   (b) 4   (c) 7
(d) 8   (e) 9

47. What will be the difference between the sum of the even digits and the sum of the odd digits in the number 875621 ?

(a) 0   (b) 1   (c) 2
(d) 4   (e) None of these

48. How many such digits are there in the number 587296341, each of which is as far away from the beginning of the number as when the digits are arranged in descending order ?

(a) Four   (b) One   (c) Two
(d) Three   (e) None of these

49. How many such pairs of digits are there in the number 84153726 each of which has as many digits between them in the number as when they are arranged in ascending order ?

(a) Two   (b) Three   (c) Four
(d) Five   (e) More than three

50. If it is possible to form a number which is perfect square of a two-digit odd number using the second, the fourth and the seventh digits of the number 793142658 using each only once, which of the following is the second digit of that two-digit odd number?

(a) 3   (b) 4   (c) 5
(d) 7   (e) None of these

2 CODING - DECODING

Coding

The method of converting a meaningful word in a non meaningful word/letter/number by a certain rule is called coding.

e.g. → AMAN → BNBO or CPES

Decoding

The method of converting a non-meaningful word/letter/number in a meaningful word by a certain rule is called de-coding.

C P E S → A M A N

Ex.1 If in a certain language 'GOAL' is coded as HPBM, how is 'POST' coded in same language.

Sol.

Type - I : **Coding based on English alphabets**.

Ex.2 If code for RADIO is SBEJP. What is code for CAMERA

Sol. CAMERA → DBNFSB

Type - II : **Coding based on group of words.**

Ex.3 In a certain code language :

Dev Das ji **means** good little frock

Ram Kishan ji **means** behaves good feel

Durga Lal Kishan **means** makes mischief feel

Das Raj Kishan **means** little girl feel

What is code for frock?

Sol. Dev

Type - III : **Coding based on conversion of name of words.**

Ex.4 If 'water' is called 'food', 'food' is called 'tree', 'tree' is called 'sky' and 'sky' is called 'wall', then where do birds fly?

Sol. birds fly in the sky and sky is called wall.

Type - IV : **Coding based on the numbers.**

Ex.5 If in a coded language A is coded as 1, B as 2 and so on then what is code for MAGGI.

Sol. MAGGI → 131779

Ex.6 If BEAUTIFUL is coded as 573041208 and RUBBER is coded as 905579, then what is code for TEAR.

Sol. TEAR → 4739.

Ex.7 If CHANDRA is coded as 49 and KALA is coded as 25. What is code for CHANDRIKA?

Sol. CHANDRA = 3 + 8 + 1 + 14 + 4 + 18 + 1 = 49

KALA   = 11 + 1 + 12 + 1 = 25

CHANDRIKA = 3 + 8 + 1 + 14 + 4 + 18 + 9 + 11 + 1
  = 69

Ex.8 If RAM is coded as 4 and SHYAM as 6, what is the code for KARAN?

R → I → 9	K → P → 16	S → H → 8
A → Z → 26	A → Z → 26	H → S → 19
M → N → 14	R → I → 09	Y → B → 2
___	A → Z → 26	A → Z → 26
49	N → M → 13	M → N → 14
4 + 9 = 13	____	____
1 + 3 = 4	90	69
	9 + 0 = 9	69 = 6 + 9 = 15 = 6

Type - V : **Coding based on symbols.**

Ex.9 If in a certain code language TRAIN means $? @ = £, ACE means @ % #.

What is the meaning of CERTAIN.

Sol. CERTAIN → % # ? $ @ = £

EXERCISE

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1. If the code for 'PEN' is 35, what will be the code for 'ASK' ?

(a) 30 (b) 31 (c) 32

(d) 35 (e) None of these

2. If RUBBER is coded as QUCCER, the code for DINNER will be

(a) DIOPER (b) CINNRE

(c) CIOOER (d) DIOOER

(e) None of these