Toppersnotes
Unleash the topper in you

REASONING

For All Competitive Exams

SIERRA INNOVATIONS

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1 CHAPTER

English Alphabet Test

- This chapter includes questions based on the English alphabet (A–Z). Candidates should know the positions of all 26 letters and basic related concepts clearly.
- **Letters are of two types:**
  - ✓ Vowels – A, E, I, O, U (There are 5 vowels in the English alphabet.)
  - ✓ Consonants – B, C, D, F, G, H, J, K, L, M, N, P, Q, R, S, T, V, W, X, Y, Z (There are 21 consonants in the English alphabet.)
- **The alphabet is divided into two halves:**
  - ✓ First Half – A to M (The first half contains 13 letters, i.e., positions 1 to 13.)
  - ✓ Second Half – N to Z (The second half contains 13 letters, i.e., positions 14 to 26.)

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
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

Short trick:

- **EJOTY (इजोटी)**

5	10	15	20	25
E	J	O	T	Y

- **CFILORUX (सिफिलोरक्स)**

3	6	9	12	15	18	21	24
C	F	I	L	O	R	U	X

- **Finding letters from the right side can be simplified using the formula:**
  - ✓ Position from left = 27 − Position from right
- **Trick to Remember Opposite Letters**

Pair	**AZ**	**BY**	**CX**	**DW**	**EV**	**FU**	**GT**
Trick	**AZ**	**BY**e	Cracks	**D**e**W**	**EV**ening	Few / Uff	**G.T**. Road

Pair	**HS**	**IR**	**JQ**	**KP**	**LO**	**MN**
Trick	**H**igh **S**chool	**I**ndian **R**ailway	**J**aipur **Q**ueen	**K**an**P**ur	**L**ife **O**K	**M**a**N**

Type-1 Position of a Letter in the English Alphabet

- If counting in the **same direction** (left to left or right to right), **subtract** both positions.
- If counting in **opposite directions** (left to right or right to left), **add** both positions.

Ex: In the English alphabet, what is the 10th letter to the left of the 21st letter from the left?
Ans: Using the trick**:** If counting in the same direction (left to left or right to right), subtract both positions.
English alphabet = 21-10= 11^{th} alphabet = K

Ex: In the English alphabet, what is the 9th letter to the left of the 11th letter from the right?

Ans: In these types of question first we calculate from the left and then subtract from the 27.

Alphabet= $11+9=20^{th}$ from the left

Original alphabet = $27-20 = 7^{th}$ alphabet = G

Type-2 Forming Letter Pairs

- The letter pair can be formed in both forward and backward directions.
- Multiple pairs can be created from a single word.
- After forming a pair with a letter, you can form another pair with the same letter if they are at the same distance according to the English alphabet.

Ex: How many such pairs of letters are there in the word 'COMBINE', each of which has as many letters between them in the word (both forward and backward direction) as they have between them in the English Alphabet?

Ans: First of all, we will write number of positions of 'COMBINE' word according to English alphabet i.e. C is written as 3 and O will be written as 15 and so on.

C	O	M	B	I	N	E
3	15	13	2	9	14	5

Here we can see that only B and E is making one pair.

Type-3 Letter Problems

Ex: If the first and eighth letters of the word 'REPRESENTATIVE' are swapped, then the second and ninth letters, and so on, are also swapped, what will be the fourth letter to the left of the 6th letter from the left in the new arrangement?

Ans:

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Original Letter	R	E	P	R	E	S	E	N	T	A	T	I	V	E
New Letter	N	T	A	T	I	V	E	R	E	P	R	E	S	E

Fourth letter to the left of the 6th letter from the left= $6-2=4^{th}$ = T

Type-4 Arrangement of English Words

- Arranging English words in alphabetical or dictionary order is called arrangement of words.

Ex: Arrange the following words according to English dictionary arrangement:

(A) Epitaxy (B) Episode (C) Epigene

(D) Epitome (E) Epilogue

Ans: In a Dictionary, every word is arranged alphabetically. Also, in each word each and every letter is positioned alphabetically. So here, dictionary the arrangement of words in a Dictionary, every word is arranged alphabetically.

(C) Epigene (E) Epilogue (B) Episode

(A) Epitaxy (D) Epitome

Therefore, the correct answer is (C), (E), (B), (A), (D)

Type-5 Meaningful Logical Order of Words

Ex: How many meaningful words of 5 letters can be made with the alphabets K, E, D, H, I each being used only once in each word?

Ans: Given letters: K, E, D, H, I

Meaningful word can be formed out of the alphabets K, E, D, H, I:

HIKED: Walk for a long distance, Hence, only one such word is possible.

Ex: If a five-letter meaningful word can be formed by using the first, third, fifth, sixth and eighth letters from the word "HALLOWEEN", then what is the last letter from the left end of the newly formed word?

Ans: The 1st, 3rd, 5th, 6th, and 8th letters from the left end of the word "HALLOWEEN" are H, L, O, W, and E respectively. The only five-letter meaningful word that can be formed using the letters is WHOLE.

2 CHAPTER

Number and Alphabet Series Test

- A series is a systematic arrangement of numbers or letters within a defined group. In competitive exams, sequences of numbers, letters, or a mix of both are presented. One position in the sequence is either left blank or contains an incorrect number or letter. Candidates are tasked with completing the series by selecting the correct option to fill the blank or identify the incorrect element.

Here's a clearer and concise way to solve number series problems:

- **Look for Patterns**: Check if the numbers are increasing or decreasing by a constant (addition/subtraction) or multiplied/divided by a constant (multiplication/division).
- **Find Differences**:
  - ✓ If the difference between consecutive numbers is the same, it's an arithmetic series (e.g., 2, 5, 8, 11).
  - ✓ If the second difference (difference of differences) is constant, it's a quadratic series.
- **Check for Multiplication/Division**: Look if each number is multiplied or divided by a constant to get the next number (e.g., 3, 6, 12, 24 where each number is doubled).
- **Recognize Special Sequences**:
  - ✓ **Squares**: 1, 4, 9, 16, ...
  - ✓ **Cubes**: 1, 8, 27, ...
  - ✓ **Fibonacci**: Each number is the sum of the two preceding ones (e.g., 0, 1, 1, 2, 3, 5).
- **Check for Ratios**: If the numbers increase by a constant ratio, it's a geometric progression (e.g., 2, 4, 8, 16).
- **Test the Options**: If options are provided, check which one follows the identified pattern.

Type-1 Series in Increasing Order

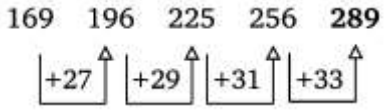
Ex: In the following question, select the missing number from the given series.

169, 196, 225, 256,_?

1. 289 **2. 324**

3. 441 **4. 361**

Ans:



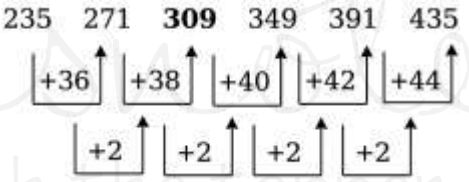
Ex: Which of the following numbers will replace the question mark (?) in the given series?

235, 271, ?, 349, 391, 435

1. 311 **2. 307**

3. 313 **4. 309**

Ans:



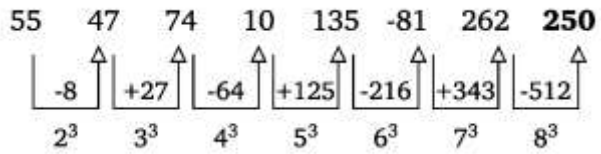
Ex: What number should replace question Mark (?) in the series given below.

55, 47, 74, 10, 135, -81, 262, ?

1. 774 **2. -250**

3. 343 **4. -343**

Ans:



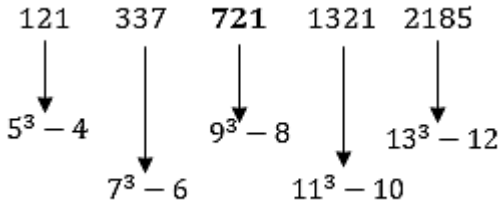
Ex: Find the missing number in the following series:

121, 337,?, 1321, 2185

1. 713 **2. 720**

3. 721 **4. 737**

Ans:



Type-2 Multiplication Based Increasing Series

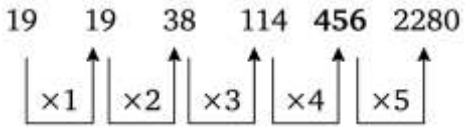
Ex: Select the number from among the given options that can replace the question mark (?) in the following series.

19, 19, 38, 114, ?, 2280

1. 344 **2. 1140**

3. 456 **4. 224**

Ans:



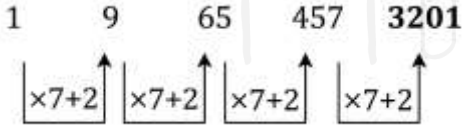
Ex: Which of the following numbers will replace the question mark (?) in the given series?

1, 9, 65, 457, ?

1. 4258 **2. 3125**

3. 3201 **4. 5289**

Ans:



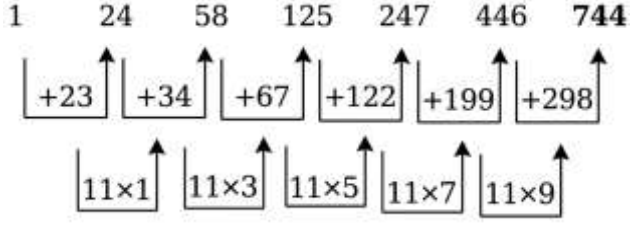
Ex: Which of the following numbers will replace the question mark (?) in the given series?

1, 24, 58, 125, 247, 446, ?

1. 774 **2. 747**

3. 744 **4. 777**

Ans:



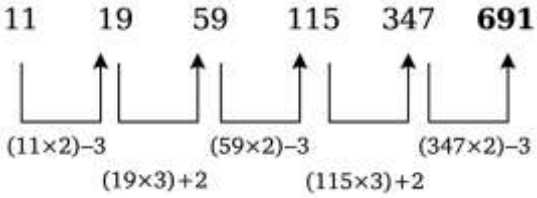
Ex: Select the number from among the given options that can replace the question mark (?) in the following series.

11, 19, 59, 115, 347, ?

1. 697 **2. 619**

3. 679 **4. 691**

Ans:



Type-3 Addition and Subtraction Series

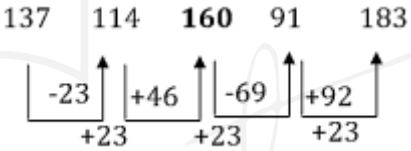
Ex: Which of the following number will replace the question mark (?) in the given series?

137, 114, ?, 91, 183

1. 145 2. 160

3. 125 4. 112

Ans:

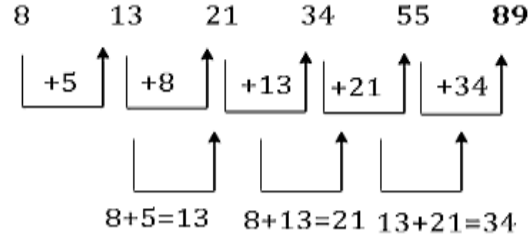


Ex: Which of the following numbers will replace the question mark (?) in the given series?

8, 13, 21, 34, 55, ?

1. 74 2. 68 3. 72 4. 89

Ans:



Type-4 Square and Cube Based Series

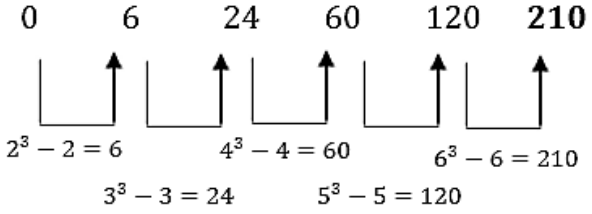
Ex: Find the next term of the series:

0, 6, 24, 60, 120, ?

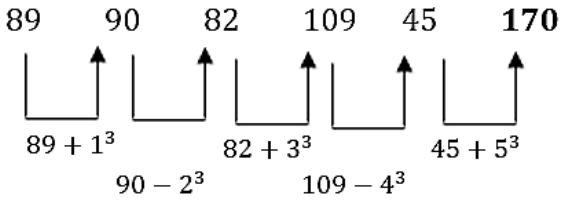
1. 180 **2. 210**

3. 216 **4. 240**

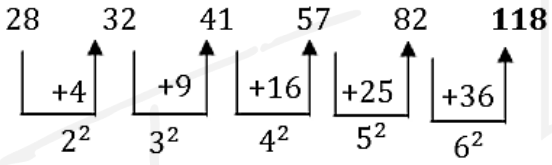
Ans:



Ex: Which number will replace the question mark (?) in the following series?
89, 90, 82, 109, 45, ?
Ans:

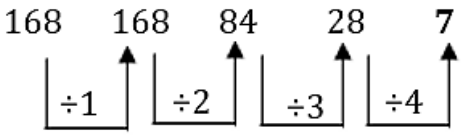


Ex: Which number will replace the question mark (?) in the following series?
28, 32, 41, 57, 82, ?
Ans:

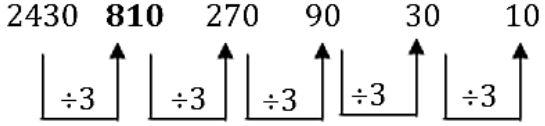


Type-5 Division Based Decreasing Series

Ex: Which number will replace the question mark (?) in the following number series?
168, 168, 84, 28, ?
Ans:



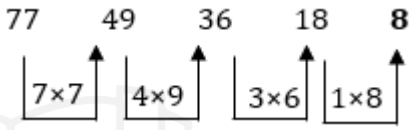
Ex: Which number will replace the question mark (?) in the following series?
2430, ?, 270, 90, 30, 10
Ans:



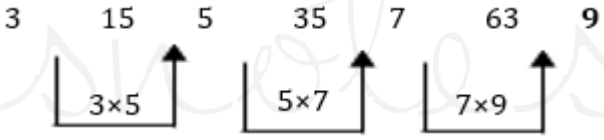
Type-6 Mixed Number Series

Ex: Find the next terms 11,13,17,19, 23,_?
1. 27 2. 29
3. 31 4. 33
Ans:
11 → Prime number
13 → Prime number
17 → Prime number
19 → Prime number
23 → Prime number
Next prime number = 29

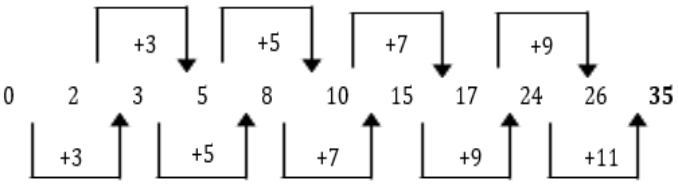
Ex: What will come in place of the question mark (?) in the following series?
77, 49, 36, 18, ?
1. 10 2. 12
3. 8 4. 16
Ans:



Ex: What will come in place of the question mark (?) in the following series?
3, 15, 5, 35, 7, 63, ?
1. 10 2. 126
3. 9 4. 84
Ans:

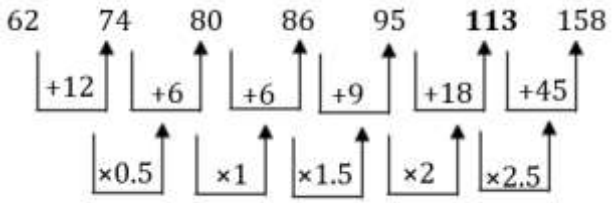


Ex: In the following series, what comes in place of the question mark (?)?
0, 2, 3, 5, 8, 10, 15, 17, 24, 26, ?
1. 28 2. 30
3. 32 4. 35
Ans:



Ex: Select the number from among the given options that can replace the question mark (?) in the following series.
62, 74, 80, 86, 95, ?, 158
1. 113 2. 100
3. 108 4. 122

Ans: The correct answer is 113



Ex: Find the wrong number in the FIRST series and then find the value of the following question.

(i) 455, 212, 131, 104, 94

(ii) Analyze the series and find the missing number (The exact place of the missing number is not known it can be on 1st, 2nd... 6th position) 57, 82, 167, 231, 312

1. Wrong term's position from left.

2. Find the position of the missing term from the right side.

Ans:

First Series:

455-212=243 = 3^5

212-131=81 = 3^4

131-104=27 = 3^3

104-95 = 3^2

95-92 = 3^1 (Wrong term 5^{th} from left)

Second Series:

57 + 5^2 = 82

82 + 6^2 = 118 (Missing term 4^{th} from right)

118 + 7^2 = 167

167 + 8^2 = 231

231 + 9^2 = 312

Type-7 Finding the Wrong Term in a Series

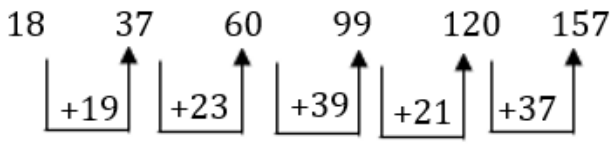
Ex: Find the wrong number in the following series

18, 37, 60, 99, 120, 157

1. 18 2. 37

3. 60 4. 99

Ans:



Logic used: (+) Increasing prime

18+19=37 37 +23=60

60+29=89 89+31=120

120+37=157

But given number is 99 instead of 89.

So, wrong number is 99.

Ex: Find the wrong number in the following series

2, 5, 14, 41, 124, 371

1. 14 2. 41

3. 371 4. 2

5. 124

Ans:

2 × 3 -1 = 5 5 ×3 - 1 = 14

14 × 3 - 1 = 4141 × 3 - 1 = 122 (Not 124)

122 × 3 - 1 = 365

Wrong number = 124

Ex: In the following number series, a wrong number is given. Find out the wrong number.

781, 783, 793, 791, 805, 800

1. 783 2. 793

3. 791 4. 805

5. 800

Ans:

156 × 5 + 1 = 781 157 × 5 - 2 = 783

158 ×5 + 3 = 793 159 × 5 - 4 = 791

160 × 5 + 5 = 805 161× 5 - 6 = 799

Wrong number in the given series is 800

Ex: Find the wrong number in the following series

2, 12, 66, 404, 2828, 22716

1. 2 2. 404

3. 2828 4. 22716

5. 12

Ans:

Each term is obtained by multiplying the previous term with successive numbers (4, 5, 6, 7, 8) and then adding successive even numbers (4, 6, 8, 10, 12).

2 × 4 + 4 = 8 + 4 = 12

12 × 5 + 6 = 60 + 6 = 66

66 × 6 + 8 = 396 + 8 = 404

404 × 7 + 10 = 2828 + 10 = 2838

2838 × 8 + 12 = 22704 + 12 = 22716

The wrong number is 2828.

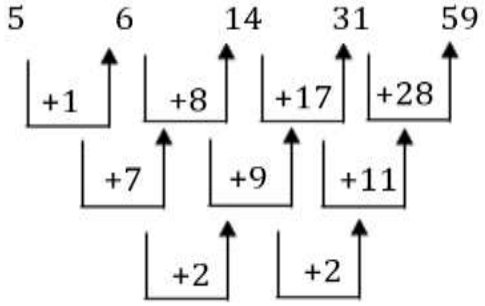
Ex: Find the wrong term from the given number series.

5, 7, 14, 31, 59

1. 31 **2.5**

3. 59 **4.7**

Ans: Correct answer in 7



In the place of 6, it is written 7, so the answer is 7.

Ex: Find the Wrong number in the given number series:

6, 7, 10, 13, 21, 37

1. 10 2. 37

3. 6 4. 13

5. 21

Ans:

The given number series follows the pattern:

$6 + 2^0 = 7$ $7 + 2^1 = 9$

$9 + 2^2 = 13$ $13 + 2^3 = 21$

$21 + 2^4 = 37$

Wrong Number in the given number series is 10.

Type-8 Alphabet Series

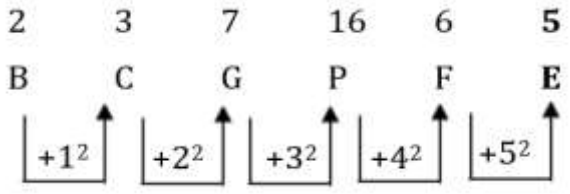
Ex: Which of the following letters will replace the question mark (?) and complete the following letter series?

B, C, G, P, F, ?

1. F **2. E**

3. C **4. D**

Ans:



Ex: A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

ABCD, CUKA, ENSX, GGAU, ?

1. IQRT 2. MNOQ

3. IRQT 4. IZIR

Ans:

Logic:

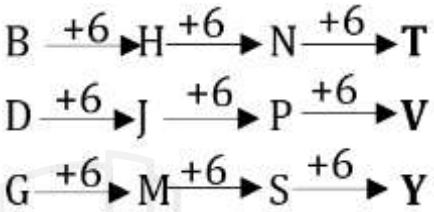
- In the first letter, add 2 to its position in the English alphabet.
- In the second letter, subtract 7 from its position.
- In the third letter, add 8 to its position.
- In the fourth letter, subtract 3 from its position.

Hence, "IZIR" is the correct answer.

Ex: A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

BDG, HJM, NPS, ?

Ans:



Ex: A series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

KIMnO, qRs Tu, WxYzA, cDeFg, ?

1. iJkLm 2. HiJkL

3. IjKIM 4. hijkl

Ans:

The pattern consists of groups of five letters arranged in the English alphabetical order. After each term, one letter is skipped. Additionally, letters follow an alternating pattern of uppercase and lowercase.

After ‘g’, the next omitted letter is ‘h’. Also, the first letter and every alternate letter must be in uppercase.

Hence, the missing term is IjKIM.

Type-9 Mixed Series

Ex: A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

FK27, LQ64, RW125, ?

1. CX216 2. XB216

3. XC216 4. YB343

Ans:
Letters follow +6 steps in the alphabet
F → L → R → X and K → Q → W → C (after Z it starts from A)
Numbers are cubes of consecutive numbers
$27 = 3^3$, $64 = 4^3$, $125 = 5^3$, $216 = 6^3$
Final answer XC216

Ex: Find the missing term. C4X, F9U, 116R,
1. L25P 2. L250
3. L270 4. L27P

Ans:
First part (letters):
C → F → I → L (each +3)
Second part (numbers):
4 → 9 → 16 → 25 (perfect squares 2^2, 3^2, 4^2, 5^2)
Third part (letters):
X → U → R → O (each −3)
So, the missing term is L25O
Ex: What will be the next term in the following category?
G7Z26, H8X24, I9V22, _____?
1. J10T20 2. W23J10
3. J10W23 4. W23T20

Ans:
First letter: G → H → I → J (+1 each step)
Number: 7 → 8 → 9 → 10 (+1 each step)
Second letter: Z → X → V → T (−2 each step)
Last number: 26 → 24 → 22 → 20 (−2 each step)
Final answer: J10T20

Type-10 Consecutive Series

In such questions, a sequence of letters and/or numbers is given, formed using uppercase and/or lowercase English alphabets along with numerical values, following a specific pattern from left to right. Certain positions in the sequence are left blank. The task is to identify the correct letters or numbers that should fill these blanks, assuming the pattern continues consistently.

Ex: Select the option that represents the letters that, when sequentially placed from left to right in the blanks below, will complete the letter series.
A_ _JL_DG_LAD_J_AD_ _L
1. DGALGLGJ 2. DGAJGLGJ
3. DAGJGLGL 4. DGALGJGJ

Ans:
Observe carefully:
- The series follows a repeating pattern of ADGLJ (with slight shifts).
- Letters appear in a cyclic order:
  A → D → G → J → L → A...
- Fill the blanks to maintain this consistent progression.
  Filling accordingly:
  A D G J L A D G L L A D G J L A D G J L
  So, the missing letters are:
  D G A L G J G J

Ex: Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?
mc_bcm_cbbc_m_bbcm
1. mccb 2. bcmb
3. cbmb 4. Bmmc

Ans:
- mccb → mc**m**bcm/**c**cbbc**c**/m**b**bbcm
- bcmb → mc**b**bcm/**c**cbbc**m**/m**b**bbcm
- cbmb → mc**c**bcm/**b**cbbc**m**/m**b**bbcm
- bmmc → mc**b**bcm/**m**cbbc**m**/m**c**bbcm

Hence, 'bmmc' is the correct answer.

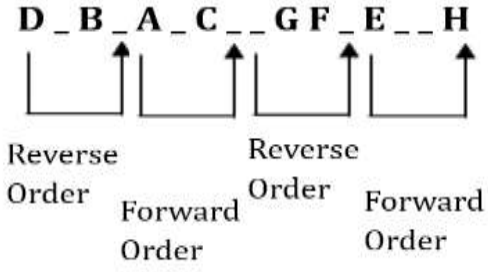
Ex: Select the option that represents the letters that, when sequentially placed from left to right in the blanks, will complete the letter series.
g_c_p_c_bc_ps_g_cp_sc
1. bpsppsbp 2. bpcgpsbp
3. bpsgpcbp 4. Bpspgcbp

Ans:
- bpsppsbp → g**b**c**p**ps**c**p**b**c**p**ps**s**gbcp**p**sc
- bpcgpsbp → g**b**c**p**pc**c**g**b**c**p**ps**s**g**b**cp**p**sc
- bpsgpcbp → g**b**c**p**ps**c**g**b**c**p**ps**c**g**b**cp**p**sc
- bpspgcbp → g**b**c**p**ps**c**p**b**c**g**ps**c**g**b**cp**p**sc

Hence, 'bpsgpcbp' is the correct answer.

Ex: Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.
D_B_A_C_ _GF_E_ _H
1. BACDEFGH 2. CABDHEFG
3. BACDHEFG 4. CABDEFGH

Ans:



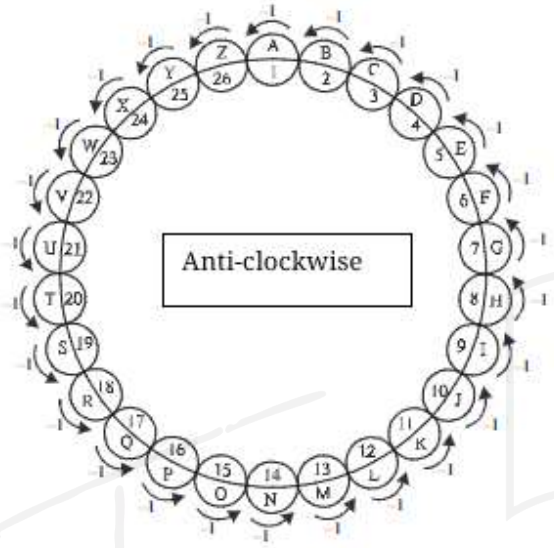
CABDHEFG → D**C**B**A**/A**B**C**D**/**H**GF**E**/E**F**G**H**

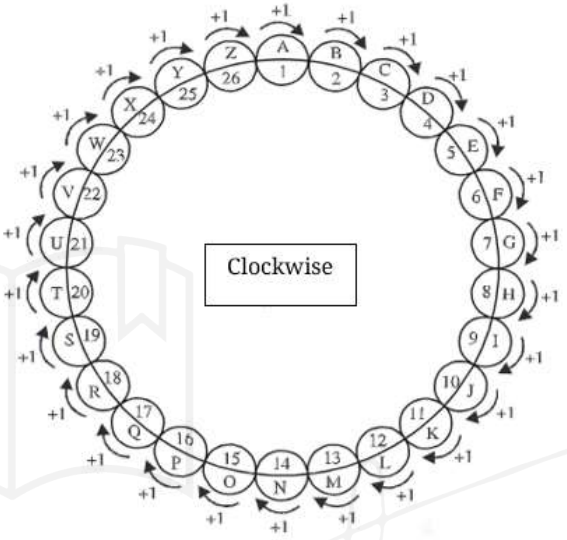
3 CHAPTER

Coding and Decoding

- Coding-decoding is a way of changing a message into a secret form before sending it, so that anyone who doesn't know the key can't understand it.

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
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26



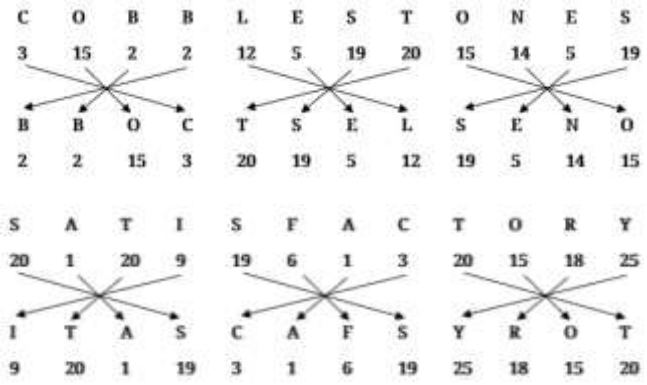


Letter Coding

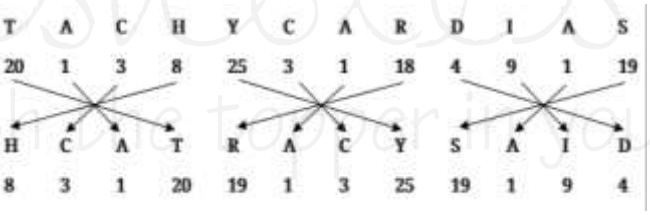
Type-1 Letter Position Change Based Coding

Ex: In a specific code language, the word "COBBLESTONES" is written as "BBOCTSELSENO" and "SATISFACTORY" as "ITASCAFSYROT." How will the word "TACHYCARDIAS" be written in that same code language?

Ans: To decode the pattern:



Similarly,



Hence, "HCATRACYSAID" is the correct answer.

Type-2 Opposite Letter Based Coding

Ex: In a specific code, if FLING is coded as UORMT, how will STICK be coded?

Ans:

- FLING → UORMT
  - ✓ F → U (Reverse of 6th letter of the alphabet)
  - ✓ L → O (Reverse of 12th letter of the alphabet)

- ✓ I → R (Reverse of 9th letter of the alphabet)
- ✓ N → M (Reverse of 14th letter of the alphabet)
- ✓ G → T (Reverse of 7th letter of the alphabet)

Now applying this same logic to STICK:

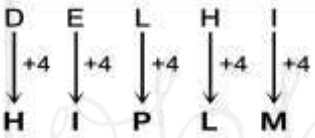
- ➢ STICK
  - ✓ S → H (Reverse of 19th letter of the alphabet)
  - ✓ T → G (Reverse of 20th letter of the alphabet)
  - ✓ I → R (Reverse of 9th letter of the alphabet)
  - ✓ C → X (Reverse of 3rd letter of the alphabet)
  - ✓ K → P (Reverse of 11th letter of the alphabet)

Thus, STICK will be coded as HGXRP.

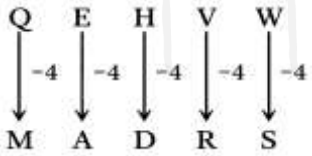
Type-3 Forward Order Letter Coding

Ex: If DELHI is coded as HIPLM, what will be the code for QEHVEW?

Ans:



Similarly,



Type-4 Ascending Order Letter Coding

Ex: In a certain code language, 'BEHOLD' is written as 'BDEHLO' and 'INDEED' is written as 'DDEEIN'. How will 'COURSE' be written in that language?

Ans:

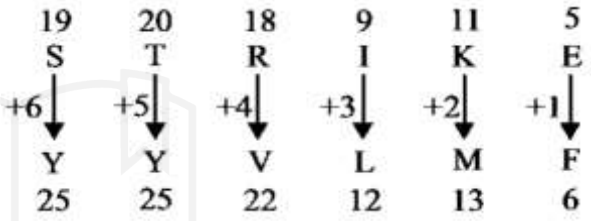
- ➢ BEHOLD → BDEHLO: The letters are rearranged by sorting the letters in ascending order: B, D, E, H, L, O:
  Rearranged output is: BDEHLO
- ➢ INDEED → DDEEIN: Rearranged output: DDEEIN

Now, following this pattern, COURSE will be written as CEORSU.

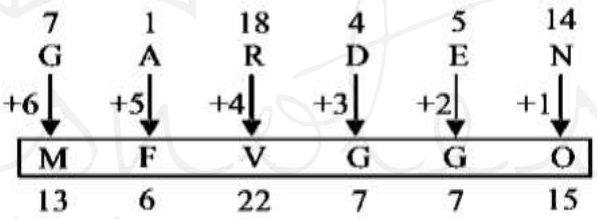
Type-5 Descending Order Letter Coding

Ex: In a certain code language, if 'STRIKE' is written as 'YYVLMF', how will 'GARDEN' be written in that language?

Ans: The first, second, third, fourth, fifth, and sixth letters of the word 'STRIKE' are in an increasing order of six, five, four, three, two, and one, but in a descending sequence.



Similarly,



Type-6 Consecutive Even Number Pattern Coding

Ex: In a certain code language, the word 'CLAIM' is written as 'EPGQW'. What will be the code for the word 'FIGHT' in the same code language?

Ans: The change from each letter of "CLAIM" to "EPGQW" follows a particular pattern:

1. C → E: C + 2 → E
2. L → P: L + 4 → P
3. A → G: A + 6 → G
4. I → Q: I + 8 → Q
5. M → W: M + 10 → W

Now, applying the same pattern to the word 'FIGHT':

1. F → H: F + 2 → H
2. I → M: I + 4 → M
3. G → M: G + 6 → M
4. H → P: H + 8 → P
5. T → D: T + 10 → D

So, the code for 'FIGHT' is 'HMMPD'.

Type-7 Decreasing Order Letter Coding

Ex: In a certain code language, if the word 'TRAIN' is coded as 'SQZHM', how will the word 'DATE' be coded in the same code language?

Ans:

Let's analyse the pattern used to encode the word "TRAIN" as "SQZHM":

1. T → S: T - 1 → S
2. R → Q: R - 1 → Q
3. A → Z: A - 1 → Z
4. I → H: I - 1 → H
5. N → M: N - 1 → M

So, each letter is shifted by -1 (decreased by 1).

Now, applying the same pattern to the word 'DATE':

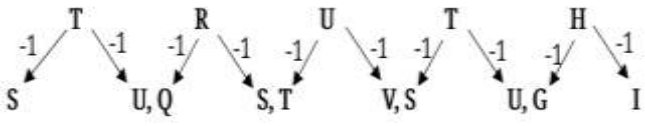
1. D → C: D - 1 → C
2. A → Z: A - 1 → Z
3. T → S: T - 1 → S
4. E → D: E - 1 → D

Thus, the word "DATE" will be coded as 'CZSD'.

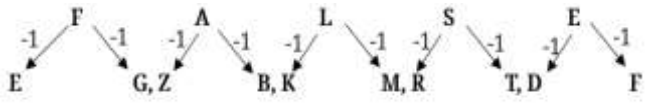
Type-8 Pair of Letters Based Coding

Ex: If the word 'TRUTH' is coded as 'SUQSTVSUGI', what will be the code for 'LIES' in the same code language?

Ans:



Similarly,



Type-9 Number Coding

Ex: In a certain code, if 'HOTEL' is coded as 300, what will be the code for 'HOSTEL'?

Ans:

Code = (sum of positional value of alphabets) x (number of alphabets)

HOTEL = (8 + 15 + 20 + 5 + 12) × (5) = 60 ×5 = 300

HOSTEL = (8 + 15 + 19 + 20 + 5 + 12) × (6) = 79 ×6 = 474

So, code for HOSTEL is 474.

Type-10 Word Coding

Ex: If "wall" is called "window," "window" is called "door," "door" is called "floor," "floor" is called "ceiling," and "ceiling" is called "ventilator," where will a person be standing?

Ans: The chain of transformations is as follows:

Wall → Window → Door → Floor → Ceiling → Ventilator.

So, a person would be standing where the ceiling is called "ventilator." Thus, the correct answer is Ceiling.

Ex: If "eraser" is called "box," "box" is called "pencil," "pencil" is called "bag," and "bag" is called "book," then what will a student use for writing?

Ans: The chain of transformations is as follows:

Eraser → Box → Pencil → Bag → Book.

The student writes with a pencil, which is now called "bag." Hence, the correct answer is Bag.

Type-11 Symbol Coding

Ex: In the given code language, 'this is done' is written as 'koj mor soj', 'that is okay' is written as 'loj roj mor', and 'you are okay' is written as 'hok nok loj'. What is the code for 'that' in this code language?

Ans: Form the sentence 2 and 3 okay = loj

From the sentence 1 and 2 is = mor

In sentence 2, the remaining code corresponds to "that" and is represented by "roj".

Ex: Direction: Study the following information carefully and answer the given questions.

'fate red mobile peace' is coded as 'ka la ho ga'

'prepare and honour fate' is coded as 'mo ta pa ka'

'peace values hero prepare' is coded as 'zi la ne mo'

'prepare values honour fate' is coded as 'zi mo ka ta'

Ex: What is the code for 'fate' in the given code language?

1. ta 2. Ka 3. zi 4. Mo

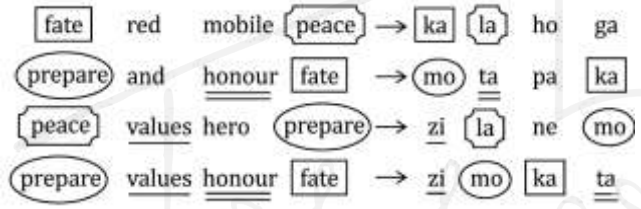
Ex: What is the code for 'peace' in the given code language?

1. ta 2. Mo 3. la 4.Either pa or mo

Ex: What is the code for 'prepare' in the given code language?

1. mo 2. Ta 3. pa 4. ka

Ans:



1. Code for fate is “ka”.
2. Code for peace is “la”.
3. Code for prepare is “mo”.

Ex: In a certain code language, 'MOST' is written as '134' and 'FUR' is written as '90'. How will 'SUCCESS' be written in that language?

Ans:

Logic: Addition of alphabet positional value × 2 = Code

'MOST' is written as '134'

M (13) + O (15) + S (19) + T (20) = 67 × 2 = 134

And, 'FUR' is written as '90'

F (6) + U (21) + R (18) = 45 × 2 = 90

Similarly, 'SUCCESS' be written as

S (19) + U (21) + C (3) + C (3) + E (5) + S (19) + S (19) = 89 × 2 = 178

Hence, the correct answer is "178".

Ex: In a certain code language, 'LIBERTY' is coded as '4221824364050'. How will 'SLAVERY' be coded in that language?

Ans:

Step 1: Arrange letters according to the alphabet’s series.

Step 2: All consonant place values multiply by 2 and it is coded as numeric values.

Step 3: Opposite letter place values of vowels are coded as numeric values.

'LIBERTY' is coded as '4221824364050'.

Step 1: LIBERTY Alphabetical order → BEILRTY.

Step 2: All consonant place values multiply by 2 and it is coded as numeric values.

Step 3: Opposite letter place values of vowels are coded as numeric values.

SLAVERY Alphabetical order - AELRSVY.

Hence, the correct answer is "26222436384450".

Ex: N = 28 and ORE = 76, then how will you code PALE?

Ans: N = 14; 14 × 2 = 28

ORE 15+18+5 38: 38×2 = 76

Similarly. PALE 16+1+12+5= 34; 34 × 2 = 68

Type-12 Analogy Based Coding

Column I contains some words, and their corresponding codes are given in Column II. In the code, it is not necessary that the letters are in the same order as they appear in the words they represent. Each letter has only one code. Carefully study both columns and answer the following questions.

Column I	Column II
(1) HEAD	(a) hlonqsx
(2) ROUTINE	(b) dhpqrs
(3) ENOUGH	(c) efnqr
(4) GHOST	(d) efhnox
(5) MASTER	(e) adeh
(6) NOSE	(f) hnor

Alphabet	N	M	E	H	A	D	G	I	O	R	S	T	U
Code	o	p	h	e	d	a	f	l	n	s	r	q	x

1. The code for D is a.
2. The code for E is h.
3. The code for G is f.
4. The code for I is l.
5. The code for M is p.

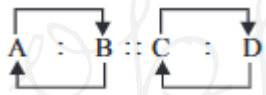
4 CHAPTER

Analogy Test

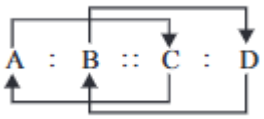
- Analogy tests involve identifying similarities between two terms. In this chapter, we explore the relationships between different elements. Such questions are included in exams to evaluate a candidate's knowledge, reasoning, and cognitive abilities.
- Analogy questions are based on specific relationships. To solve these questions effectively, candidates should follow these two steps:

Step 1: Determine the relationship between the first two terms given in the question. **Step 2:** Apply the identified relationship to the remaining terms and choose the correct answer.

Rule:1 Basic relationship: In the analogy A: B:: C:D, the relationship between A and B will be the same as the relationship between C and D or D and C.



Rule:2 Developed Relationship: In the analogy A:B:: C:D, the relationship between A and C, or C and A, will be the same as the relationship between B and D, or D and B. It is not necessary that the relationship is directly committed; it may vary.



Type-1 Word Analogy

Common Relationship Patterns

- **Synonym & Antonym:** Famous: Renowned :: Important: Significant (Same); Big: Small :: Sharp: Blunt (Opposite).
- **Tool/Instrument & Action/Function:** Needle: Sew :: Knife: Cut (Instrument-Action).
- **Unit/Part & Whole:** Petal: Flower:: Page: Book.
- **Worker & Tool/Working Place:** Artist: Brush:: Farmer : Plough; Doctor : Hospital :: Teacher : School.
- **Gender/Individual & Group:** Lion: Lioness:: Dog: Bitch.
- **Topic/Category:** Country: Capital (India: New Delhi):: State: Capital (Maharashtra: Mumbai).

Type of Relation	Example
Antonyms/ Synonyms	Believer: Atheist, Import: Export, Victory: Defeat, Living: Non-living
Country and Continent	India: Asia, Ghana: Africa, Canada: North America, France: Europe
Country and Capital	China: Beijing, Nepal: Kathmandu, Japan: Tokyo, Sri Lanka: Colombo
Country and Currency	China: Yuan, Japan: Yen, Italy: Lira, Myanmar: Kyat
Country and Parliament	India: Parliament, Afghanistan: Shora, Iran: Majlis, Japan: Diet
Country and National Symbol	India: Ashoka Chakra, Spain: Eagle, France: Lily, Iran: Rose

Country and National Sport	Britain: Cricket, India: Hockey, Japan: Judo, Spain: Bullfighting
Country and River	India: Ganga, China: Yangtze, Italy: Tiber, Britain: Thames
City and River	London: Thames, Rome: Tiber, Paris: Seine, Delhi: Yamuna
City and Industry	Mumbai: Film Production, Manchester: Cotton, Pittsburgh: Iron and Steel, Detroit: Automobiles
State and Capital	Uttar Pradesh: Lucknow, Uttarakhand: Dehradun, Jharkhand: Ranchi, Chhattisgarh: Raipur
Union Territory and Capital	Lakshadweep: Kavaratti, Dadra and Nagar Haveli: Silvassa
State and High Court	Uttar Pradesh: Allahabad, Uttarakhand: Nainital, Rajasthan: Jodhpur, Bihar: Patna
Product and Raw Material	Curd: Milk, Shoe: Leather, Sugar: Sugarcane, Liquor: Grapes
Worker and Product	Goldsmith: Jewellery, Cobbler: Shoes, Cook: Food, Masons: House
Person and Workplace	Doctor: Hospital, Teacher: School, Farmer: Field, Judge: Court
Person and Tool	Blacksmith: Hammer, Mason: Trowel, Farmer: Plough, Carpenter: Saw

Tool and Work	Pen: Writing, Scissors: Cutting, Spoon: Eating, Glasses: Seeing
Animal and Habitat	Lion: Cave, Horse: Stable, Rat: Hole, Bird: Nest, Bee: Beekeeping, Fish: Fishing
Revolution and Production Area	White Revolution: Milk Yellow Revolution: Oilseed
Animal and Sound	Dog: Barking, Lion: Roaring, Horse: Neighing, Cat: Meowing
Animal and Offspring	Dog: Puppy, Lioness: Cub, Cow: Calf, Sheep: Lamb
Disease and Affected Organ	Pyorrhoea: Teeth, Trachoma: Eyes, Jaundice: Liver, Tuberculosis: Lungs
Location and Place	Taj Mahal: Agra, Hawa Mahal: Jaipur, Jahaz Mahal: Mandu, Red Fort: Delhi
Person and Samadhi Place	Mahatma Gandhi: Raj Ghat, Lal Bahadur Shastri: Vijay Ghat, Chaudhary Charan Singh: Kisan Ghat
Sport and Court	Badminton: Court, Hockey: Field, Boxing: Ring, Shooting: Range
Sport and Cup/Trophy	Cricket: Dilip Trophy, Football: Durand Cup, Hockey: Dhyan Chand Trophy, Golf: Ryder Cup
Award and field	Booker Prize: Literature, Grammy Award: Music, Oscar Award: Film

Instructions: In the following question, select the related number from the given alternatives.

Ex: Car: Road :: Rail : ____.

(A) Water (B) Air

(C) Road (D) Track

Ans: Just as a car runs on a road, a train (rail) runs on a track.

Ex: Light: Lumen::__?__:__?__

(A) Temperature: Candela

(B) Density: Kilogram

(C) Pressure: Pascal

(D) Force: Meter

Ans: Lumen is the unit of light, and Pascal is the unit of pressure. Both pairs represent the relationship between a physical quantity and its corresponding unit.

Ex: Person: Biography::__?__:__?__.

(A) World: Encyclopaedia

(B) Nation: History

(C) Place: Economy

(D) Country: Constitution

Ans: A biography is a written account of a person's life, and history is a written account of a nation's past. Both pairs reflect a relationship between a subject and its written or recorded account.

Ex: Just as 'Taj Mahal' is related to 'Agra', in the same way, 'Lal Bagh' is related to which place?

(A) Bengaluru (B) Delhi

(C) Haridwar (D) Madhya Pradesh

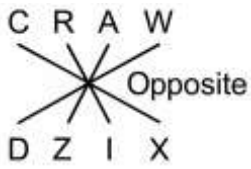
Ans: Just as 'Taj Mahal' is located in Agra, 'Lal Bagh' is located in Bengaluru.

Type-2 Letter Analogy

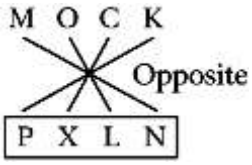
Ex: Select the option that is related to the third term in the same way as the second term is related to the first term.

CRAW: DZIX:: MOCK:?

Ans: For CRAW: DZIX

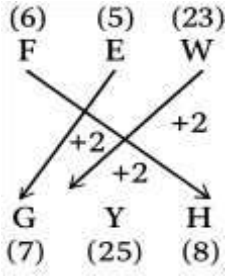


Similarly, for MOCK,

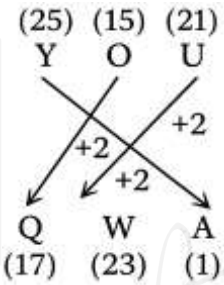


Ex: Select the option that is related to the third letter - cluster in the same way as the second letter -cluster is related to the first letter - cluster. FEW: GYH :: YOU : ?

Ans: For, FEW: GYH

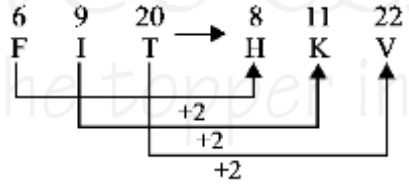


Similarly, YOU:?

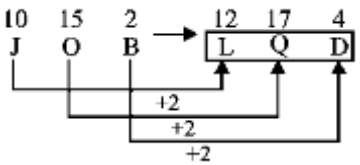


Ex: FIT: HKV:: JOB:?

Ans: logic



Similarly



Ans: JOB: LQD

Type-3 Number Analogy

Square

Number	Square	Number	Square
1	1	2	4
3	9	4	16

5	25	6	36
7	49	8	64
9	81	10	100
11	121	12	144
13	169	14	196
15	225	16	256
17	289	18	324
19	361	20	400
21	441	22	484
23	529	24	576
25	625	26	676
27	729	28	784
29	841	30	900
31	961	32	1024
33	1089	34	1156
35	1225	36	1296
37	1369	38	1444
39	1521	40	1600

Cube

Number	Cube	Number	Cube
1	1	2	8
3	27	4	64
5	125	6	216
7	343	8	512
9	729	10	1000
11	1331	12	1728
13	2197	14	2744
15	3375	16	4096
17	4913	18	5832
19	6859	20	8000

Based on square

Ex: 6:36::11: ?

Ans: $6^2=36$, $11^2=121$

Based on cube

Ex: 8:512::10:?

Ans: $8^3=512$, $10^3=1000$

Based on addition

Ex: 389: 392:: 450:?

Ans: 389+3=392 450+3=453

Based on subtraction

Ex: 389:384::450:?

Ans: 389-5=384 450-5=445

Based on multiplication

Ex: 7:56::6:?

Ans: 7×8=56 6×8=48

Based on division

Ex: 35:7::25:?

Ans: 35÷7=5 25÷5=5

Based on number group

Select the set in which the numbers are related in the same way as are the numbers of the following sets. (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 - Operations on 13 such as adding /subtracting/ multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

Ex: (15, 25, 35) (45, 55, 65)

(1) (55, 65, 75) (2) (45, 55, 70)

(3) (55, 75, 85) (4) (55, 60, 70)

Ans: Logic

$15 \xrightarrow{+10} 25 \xrightarrow{+10} 35$

$45 \xrightarrow{+10} 55 \xrightarrow{+10} 65$

We check each option.

$55 \xrightarrow{+10} 65 \xrightarrow{+10} 75$

The set that relates in the same way as the given sets is Option (1) (55, 65, 75).

Ex: (7, 49, 343) (8, 64, 512)

(1) (6, 36, 206) (2) (5, 25, 225)

(3) (11, 121, 1221) (4) (9, 81, 729)

Ans: Logic

(7, 49, 343) = $(7,7^2,7^3)$

(8, 64, 512) = $(8,8^2,8^3)$

(6, 36, 206): 36 is 6^2, so it's the square of 6: 206 is not 6^3(which is 216), so this does not follow the pattern.

(5, 25, 225): 25 is 5^2, so it's the square of 5: 225 is 5^3, so it's the cube of 5.

(11, 121, 1221): 121 is 11^2, so it's the square of 11: 1221 is not 11^3(which is 1331), so this does not follow the pattern.

(9, 81, 729): 81 is 9^2, so it's the square of 9:729 is 9^3, so it's the cube of 9.

Option (4) seems to be the most accurate match in terms of following the same pattern.

Ex: (2, 7, 81) (5, 6, 121)

(1) (7, 5, 134) (2) (5, 4, 100)

(3) (6, 2, 36) (4) (6, 7, 169)

Ans:

2+7=9	9^2=81
5+6=11	11^2=121
7+5=12	12^2=144 ≠ 134
5+4=9	9^2=81 ≠ 100
6+2=8	8^2=64 ≠ 36
6+7=13	13^2=169=169

Type- 4 Letter-Number Analogy

- In these types of questions, there is a relationship between English letters and numbers. This relationship can exist in the form of corresponding numbers for the English letters or in other forms.

Ex: Instructions: On the left side of the symbol, a letter/letter pair and numbers are given, and on the right side, a letter/letter pair and a question mark (?) are provided. You need to identify which number from the given options on the right side maintains the same relationship with the right-side letter/letter pair as the left-side letter/letter pair and number.

Ex: Vijay: 05 :: Shubham:?

Ans:
Number of alphabets in 'Vijay' = 5
So, from this logic
Number of alphabets in 'Shubham' =7

Ex: Select the option that is related to the fifth letter-number cluster in the same way as the second letter-number cluster is related to the first letter-number cluster and fourth letter-number cluster is related to third letter-number cluster.

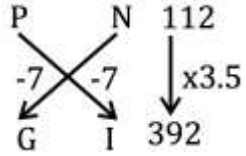
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 Operations on 13 such as adding / subtracting / multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

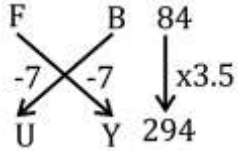
PN112: G1392 :: FB84: UY294 :: AR56:?

1. KT204 2. KT196

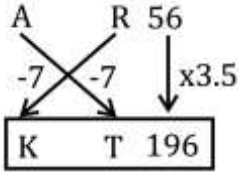
3. LS204 4. LS196

Ans:





Similarly,



The correct answer is option 2.