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Edition



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# REASONING

**For All Competitive Exams**



# INDEX

S No.	Chapter Title	Page No.
1	English Alphabet Test	1
2	Number and Alphabet Series Test	3
3	Coding and Decoding	9
4	Analogy Test	14
5	Classification Test	19
6	Direction and Distance	23
7	Blood Relation	28
8	Clock	32
9	Seating Arrangement	35
10	Calendar	43
11	Mathematical Operations	46
12	Venn Diagram	49
13	Ranking and Sequence Test	53
14	Syllogism	57
15	Dice	63
16	Missing Term Test	67
17	Puzzle Test	71
18	Decision Making	80
19	Mirror Image and Water Image	83
20	Figure Series	85
21	Figure Analogy	90
22	Figure Classification	95
23	Figure Formation	97

# INDEX

S No.	Chapter Title	Page No.
24	Counting of Figures	100
25	Figure Completion	105
26	Cube and Cuboid	107
27	Inequality	109
28	Statement and Conclusion	113
29	Statement and Argument	117
30	Statement and Assumptions	121
31	Data Sufficiency	124

# 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**

<b>Pair</b>	<b>AZ</b>	<b>BY</b>	<b>CX</b>	<b>DW</b>	<b>EV</b>	<b>FU</b>	<b>GT</b>
Trick	AZ	BYe	Cracks	DeW	EVening	Few / Uff	G.T. Road

<b>Pair</b>	<b>HS</b>	<b>IR</b>	<b>JQ</b>	<b>KP</b>	<b>LO</b>	<b>MN</b>
Trick	High School	Indian Railway	Jaipur Queen	KanPur	Life OK	MaN

### 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<sup>th</sup> 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 =  $11 + 9 = 20^{\text{th}}$  from the left

Original alphabet =  $27 - 20 = 7^{\text{th}}$  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:**

<b>Position</b>	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>Original Letter</b>	R	E	P	R	E	S	E	N	T	A	T	I	V	E
<b>New Letter</b>	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 =  $6 - 2 = 4^{\text{th}} = \text{T}$

### 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

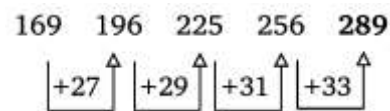
Ex: In the following question, select the missing number from the given series.



169, 196, 225, 256, \_?

1. 289
2. 324
3. 441
4. 361

Ans:

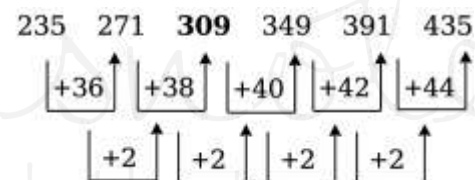


Ex: Which of the following numbers will replace the question mark (?) in the given series?

235, 271, ?, 349, 391, 435

1. 311
2. 307
3. 313
4. 309

Ans:

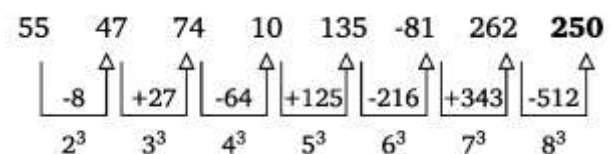


Ex: What number should replace question Mark (?) in the series given below.

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

1. 774
2. -250
3. 343
4. -343

Ans:

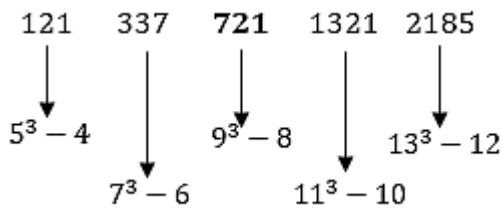


Ex: Find the missing number in the following series:

121, 337, ?, 1321, 2185

1. 713
2. 720
3. 721
4. 737

Ans:



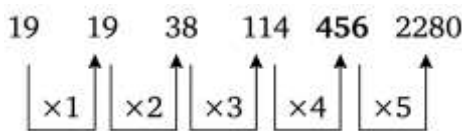
## Type-2 Multiplication Based Increasing Series

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:

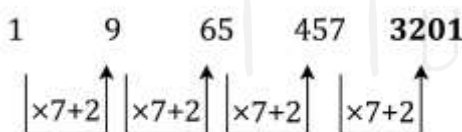


Ex: Which of the following numbers will replace the question mark (?) in the given series?

1, 9, 65, 457, ?

1. 4258            2. 3125  
3. 3201            4. 5289

Ans:

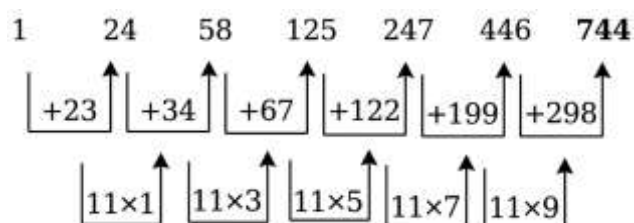


Ex: Which of the following numbers will replace the question mark (?) in the given series?

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

1. 774            2. 747  
3. 744            4. 777

Ans:

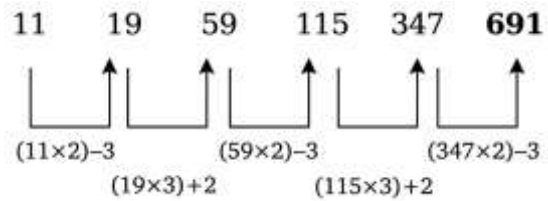


Ex: Select the number from among the given options that can replace the question mark (?) in the following series.

11, 19, 59, 115, 347, ?

1. 697            2. 619  
3. 679            4. 691

Ans:



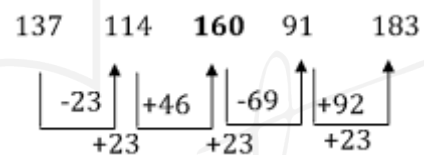
## Type-3 Addition and Subtraction Series

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:

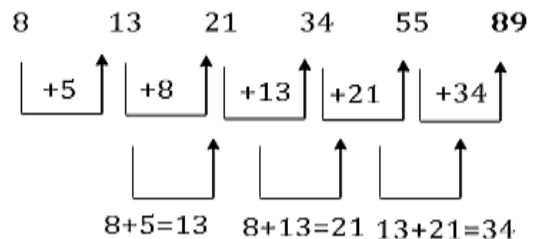


Ex: Which of the following numbers will replace the question mark (?) in the given series?

8, 13, 21, 34, 55, ?

1. 74    2. 68    3. 72    4. 89

Ans:



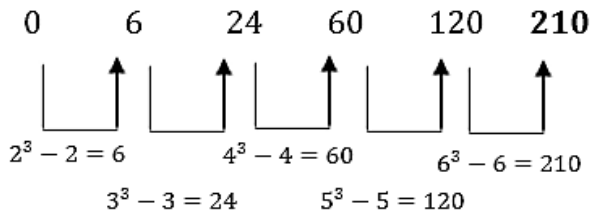
## Type-4 Square and Cube Based Series

Ex: Find the next term of the series:

0, 6, 24, 60, 120, ?

1. 180            2. 210  
3. 216            4. 240

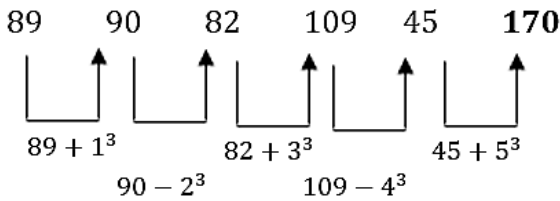
Ans:



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

89, 90, 82, 109, 45, ?

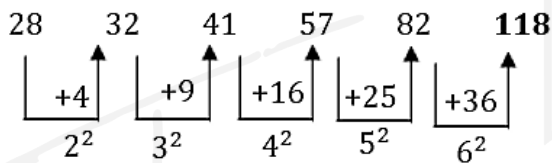
Ans:



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

28, 32, 41, 57, 82, ?

Ans:

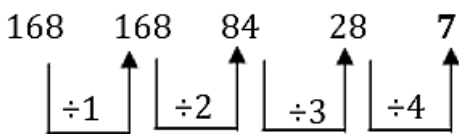


### Type-5 Division Based Decreasing Series

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

168, 168, 84, 28, ?

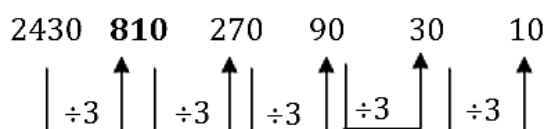
Ans:



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:

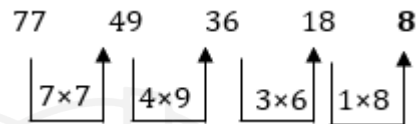
11 → Prime number  
 13 → Prime number  
 17 → Prime number  
 19 → Prime number  
 23 → Prime number  
 Next prime number = 29

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:

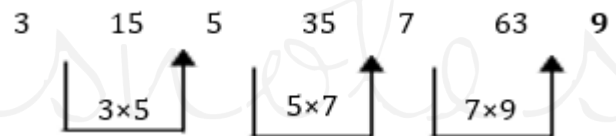


Ex: What will come in place of the question mark (?) in the following series?

3, 15, 5, 35, 7, 63, ?

1. 10
2. 126
3. 9
4. 84

Ans:

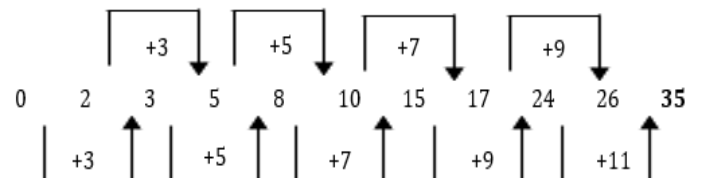


Ex: In the following series, what comes in place of the question mark (?)?

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

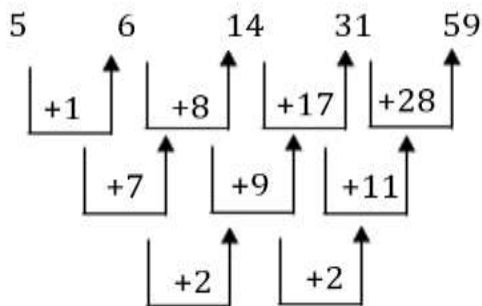


**Ex: Find the wrong term from the given number series.**

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:

$$6 + 2^0 = 7 \qquad 7 + 2^1 = 10$$

$$10 + 2^2 = 14 \qquad 14 + 2^3 = 26$$

$$26 + 2^4 = 66$$

Wrong Number in the given number series is 10.

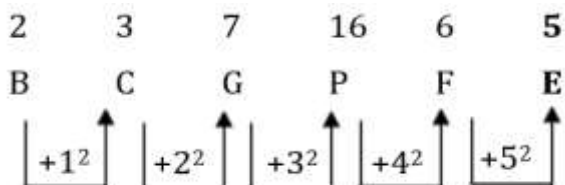
### Type-8 Alphabet Series

**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:**

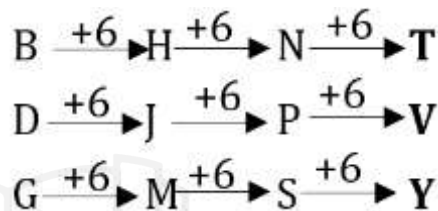
**Logic:**

- 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<sup>3</sup>, 64 = 4<sup>3</sup>, 125 = 5<sup>3</sup>, 216 = 6<sup>3</sup>

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<sup>2</sup>, 3<sup>2</sup>, 4<sup>2</sup>, 5<sup>2</sup>)

**Third part (letters):**

X → U → R → O (each -3)

So, the missing term is L250

**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**b**bbc/m**b**bbcm

- bcmb → mc**b**bcm/c**b**bbc/m**b**bbcm

- cbmb → mc**c**bcm/**b**bbc/m**b**bbcm

- bmmc → mc**b**bcm/**m**bbc/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**pb**c**pp**s**g**b**cp**p**sc

- bpcgpsbp → g**b**c**p**pc**g**bc**p**ps**g**bc**p**psc

- bpsgpcbp → g**b**c**p**ps**c**g**b**cp**p**sc**b**cp**p**sc

- bpspgcbp → g**b**c**p**ps**c**pb**c**g**p**sc**g**bc**p**psc

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 \_ \_ G F \_ E \_ \_ H**

1. BACDEFGH

2. CABDHEFG

3. BACDHEFG

4. CABDEFGH

**Ans:**

D \_ B \_ A \_ C \_ \_ G F \_ E \_ \_ H

Reverse

Reverse

Order

Order

Forward

Forward

Order

Order

**CABDHEFG → DCBA/ABCD/HGFE/EFHG**

# 3

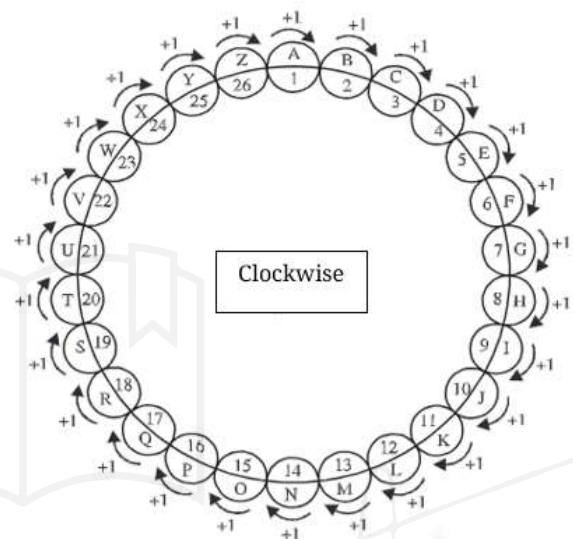
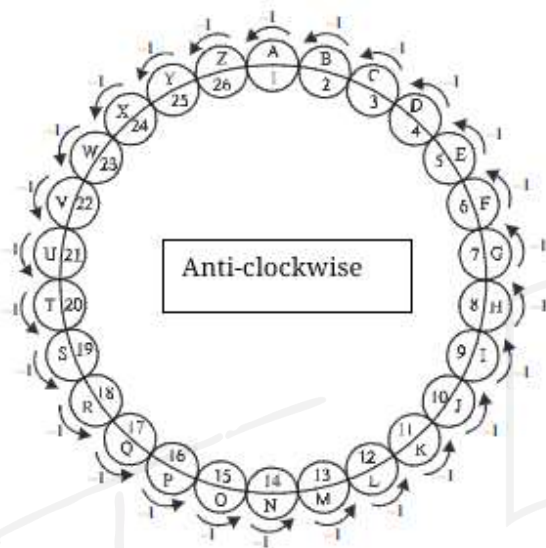
## CHAPTER

# 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



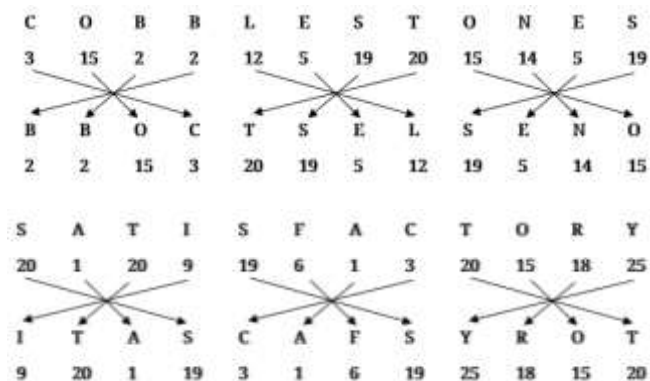
### Letter Coding

#### Type-1 Letter Position Change Based Coding

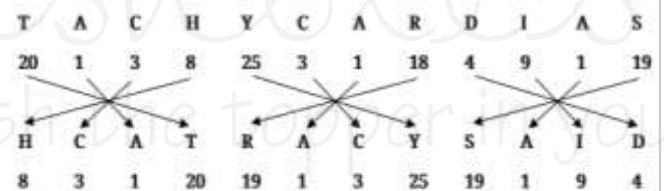


Ex: In a specific code language, the word "COBBLESTONES" is written as "BBOCTSELSENO" and "SATISFACTORY" as "ITASCAFSYROT." How will the word "TACHYCARDIAS" be written in that same code language?

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:

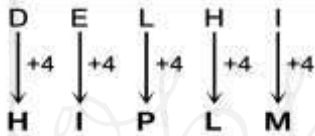
- STICK
  - ✓ S → H (Reverse of 19th letter of the alphabet)
  - ✓ T → G (Reverse of 20th letter of the alphabet)
  - ✓ I → R (Reverse of 9th letter of the alphabet)
  - ✓ C → X (Reverse of 3rd letter of the alphabet)
  - ✓ K → P (Reverse of 11th letter of the alphabet)

Thus, STICK will be coded as HGXP.

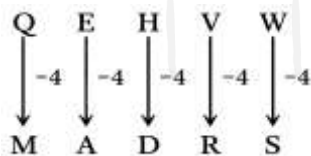
### Type-3 Forward Order Letter Coding

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

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

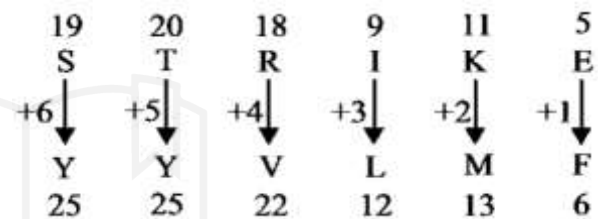
- INDEED → DDEEIN: Rearranged output: DDEEIN

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

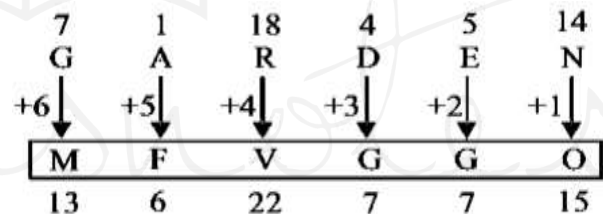
### Type-5 Descending Order Letter Coding

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':

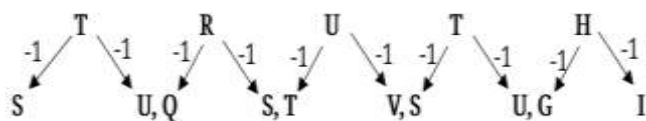
1. D → C: D - 1 → C
2. A → Z: A - 1 → Z
3. T → S: T - 1 → S
4. E → D: E - 1 → D

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

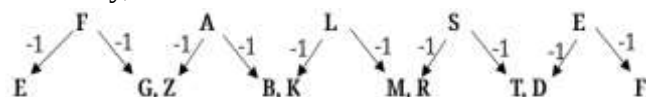
### Type-8 Pair of Letters Based Coding

**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) × (number of alphabets)

$$\text{HOTEL} = (8 + 15 + 20 + 5 + 12) \times (5) = 60 \times 5 = 300$$

$$\text{HOSTEL} = (8 + 15 + 19 + 20 + 5 + 12) \times (6) = 79 \times 6 = 474$$

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:** From 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

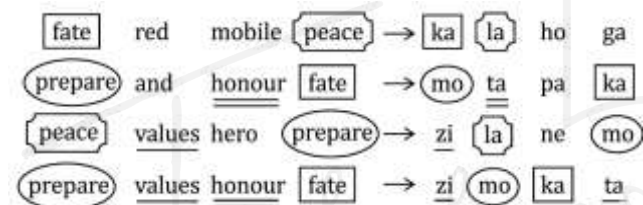
**Ex: What is the code for 'peace' in the given code language?**

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:**



- Code for fate is "ka".
- Code for peace is "la".
- 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) hlongsx
(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

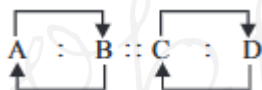


- Analogy tests involve identifying similarities between two terms. In this chapter, we explore the relationships between different elements. Such questions are included in exams to evaluate a candidate's knowledge, reasoning, and cognitive abilities.
- Analogy questions are based on specific relationships.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

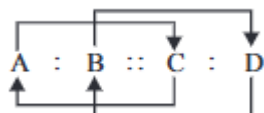
**Step 1:** Determine the relationship between the first two terms given in the question.

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

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

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

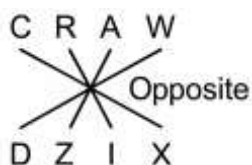
Ans: Just as 'Taj Mahal' is located in Agra, 'Lal Bagh' is located in Bengaluru.

### 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

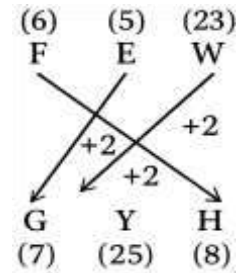


Similarly, for MOCK,

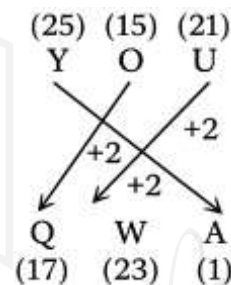


Ex: Select the option that is related to the third letter - cluster in the same way as the second letter - cluster is related to the first letter - cluster. FEW: GYH :: YOU : ?

Ans: For, FEW: GYH

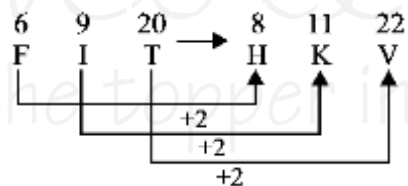


Similarly, YOU:?

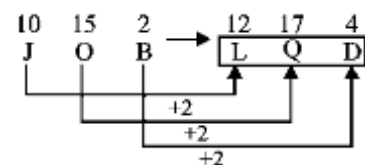


Ex: FIT: HKV:: JOB:?

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:  $7 \times 8=56$   $6 \times 8=48$

### Based on division

Ex: 35:7::25:?

Ans:  $35 \div 7=5$   $25 \div 5=5$

### 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

$15 \xrightarrow{+10} 25 \xrightarrow{+10} 35$   
 $45 \xrightarrow{+10} 55 \xrightarrow{+10} 65$