

Concept 1: Coding and Decoding

Coding is defined as expressing a word / phrase as a different word or in a different form using a specific coding logic. The coded / derived word is of no use until and unless the logic in which it has been coded is known. Similarly, decoding is defined as the process of arriving at the equivalent term from the given coded word using the same logic. Some of the commonly used coding methods are given in the table below.

Category	Description of Coding method	Example
A	An equal value ‘n’ is added to or subtracted from the place value of letters of the alphabet in the given word.	If the word “PINK” is coded “QJOL”, then what is the code for “ROSE”? Place value of alphabets: A-1; B-2;C-3....Z-26; Here the coding logic is +1. It is added to the place value of all the letters of the given word. Hence, “ROSE” will be coded as “SPTF”.
B	Values in arithmetic progression are added to or subtracted from the place value of letters of the alphabet in the given word.	If the word “FOCUS” is coded as “HSICC”, then what will “LIGHT” be coded as? The coding logic used here is +2 +4 +6 +8 +10. Hence, “LIGHT” will be coded as “NMMQD”.
C	Each alphabet is coded with a specific pattern (as illustrated in category A or in B) and then the order of letters of the alphabet is reversed.	If the word “FIVE” is coded as “IYKG”, then what will “LIFE” be coded as? The coding logic used here is +1 +2 +3 +4 and the order of the letters of the alphabet is reversed. Hence, “LIFE” will be coded as “IIKM”.

D	Each letter is assigned a random code (alphabet or number).	If in a certain language "FIVE" is coded as "5143" and "LIGHT" is coded as "21876", then what will "LIFT" be coded as? Here each letter of the alphabet has been assigned a numerical value. By comparing the given strings, we can find the values as L-2; I-1; F-5; T-6. Hence the code for lift is "2156".
E	Each word is coded randomly as another word.	If water is called food, food is called tree, tree is called sky, sky is called wall, then on which of the above will a fruit grow? The answer to this question is tree but it is coded as sky. So the required answer is "SKY".
F	For an English sentence, an equivalent coded sentence will be given but the coded sentence will not have any specific order. From two or three such statements, the respective codes will have to be determined.	In a particular language, "TOM KUN SUD" means 'Dogs are barking'; "KUN JO MOP" means 'Dogs and Horses' and "MUT TOM KO" means 'Donkeys are mad'. How is Dog coded as? In the first two sentences, the only common word is Dog and the only common word in the coded form is KUN. Hence, Dog is coded as "KUN".
G	The coded form of the words will be given, from which decoding has to be done to determine the equivalent original word.	If the word "NEOMAN" is coded as "OGRQFT", then which word will be coded as "ZKCLUP"? Here the coding pattern is +1 +2 +3 +4 +5 +6. Performing the reverse operation [-1 -2 -3 -4 -5 -6], the original word for "ZKCLUP" is "YIZHPJ".

The above given list is not exhaustive in nature but covers the most commonly used coding patterns asked in recruitment tests.



Concept 2: Number and Alphabet Series

In questions on number and alphabet series, a series of terms following a specific pattern will be given with some missing terms. You have to identify the pattern followed by the terms and extrapolate it to determine the missing term in the series. Some of the commonly used patterns for forming number/alphabet series are given in the table below.

Category	Description	Example
A	A value 'n' is added to or subtracted from the numbers/place value of alphabets in the given series.	<p>a. 254, 256, 258, ? The missing term is 260. [Pattern: 2 is added to each number]</p> <p>b. Q, P, O, ?, M. The missing term is N. [Pattern: -1 is added to the place value of each term]</p>

B	Values in arithmetic progression are added to or subtracted from the numbers/place value of alphabets in the given series.	<p>a. 12, 13, 15, 18, 22, ? The missing term is 27. [Pattern: 1, 2, 3 etc., are added to each number]</p> <p>b. A, D, J, S, ? The missing term is E. [Pattern: 3, 6, 9 etc., are added to each the place value of each alphabet]</p>
C	Values in geometric progression are added to or subtracted from the numbers/place value of alphabets in the given series.	<p>a. 342, 344, 348, ?, 372, 404. The missing term is 356. [Pattern: 2, 4, 8 etc., are added to each number]</p> <p>b. I, G, K, C, ? The missing term is S. [Pattern: -2, 4, -8, etc., are added to the place value of each alphabet]</p>
D	The odd and even numbered terms follows a different pattern.	<p>4, 8, 8, 16, 12, 32, ?, 64. The missing term is 16. [The odd numbered terms follow a pattern of + 4 and the even numbered terms follow a pattern of $\times 2$].</p>
E	The elements of the series are manipulated with two different operations to obtain the next term.	<p>2, 7, 17, 37, ? The missing term is 77. [The pattern is (previous term) $\times 2 + 3$].</p>



Concept 3: Analogy

The word analogy means similarity between like features as of two things. Questions on analogy test the ability of a candidate to understand the relationship between two given terms (set of numbers / alphabets) and apply the same relationship to find the missing term in the question. Some of the commonly occurring relationships between terms in questions on analogy are given in the table below.

Category	Description	Example
A	Basic operators The relation between the two terms is that a basic mathematical operation such as addition, subtraction, multiplication or division with a particular term is performed on the first term to obtain the subsequent term.	a. $21 : 3 :: 574 : ?$ The second term is obtained when the first term is divided by 7. Answer is 82. b. $B : D :: S : ?$ The second term is obtained when two is added to the place value of the first term. Answer is U.
B	Raising to a particular power One term is equal to another term raised to a particular power.	$3 : 243 :: 5 : ?$ The second term is obtained when the first term is raised to the fifth power. Answer is $3125 (5^5)$.
C	Multiple operators Multiple mathematical operations are performed on the first term to obtain the subsequent term.	$22 : 47 :: 56 : ?$ The second term is obtained when the first term is multiplied by two and then three is added to it. Answer is $56 \times 2 + 3 = 115$.
D	Nature of each term A particular pattern can be observed in all the given terms.	$42 : 56 :: 72 : ?$ $42 = 6 \times 7; 56 = 7 \times 8;$ $72 = 8 \times 9$; The subsequent term will be $= 9 \times 10 = 90$.



Concept 4: Odd Man Out

In questions on finding the odd term, a series of terms will be given and the test taker will have to identify the odd term among the given terms. All the given terms, barring one of them will follow a particular pattern. Once the pattern is determined, the odd term can be easily identified. Some of the commonly used patterns in these types of questions are given in the table below.

Category	Description	Example
A	A common value will be added to or subtracted from a term to obtain the next term of the series. The place value will be considered in the case of alphabets.	2, 5, 8, 11, 15, 17, 20 In this series, 3 is added to a term to form the subsequent term. The odd term is 15. It should have been 14.
B	In this pattern, values in arithmetic progression are added to or subtracted from a term to form the subsequent terms of the series.	27, 28, 30, 33, 36, 42, 48 In this series, 1, 2, 3, etc., are added to a term to form the subsequent term. The odd term is 36. It should be 37.

C	The terms in the series will belong to a particular category. (e.g., odd numbers, prime numbers, vowels etc.,).	3, 5, 9, 11, 14, 17, 21 The odd man term is 14 (the rest of the numbers are odd numbers)
D	The terms in odd and even numbered places follow a different pattern.	10, 14, 28, 32, 64, 68, 132 To obtain terms in even places, 4 is added to the previous term and to obtain terms in the odd places, the previous term is doubled. The odd term is 132.
E	Two different mathematical operations are performed on a term to get the next term of the series.	7, 8, 18, 57, 228, 1165, 696 The pattern here is $(\times 1 + 1, \times 2 + 2, \dots)$. Hence, the odd man out is 228.



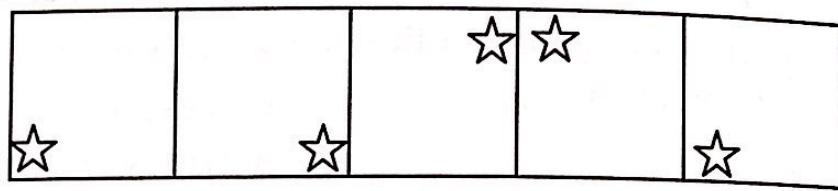
Concept 5: Visual reasoning

Questions from visual reasoning can be based on a series of images or image based analogy or finding the odd image out of the given set of images. Some of the commonly used patterns in these types of questions are given below. Visual reasoning tests are considered by recruiters as a good measure of general intelligence.

Category A: Change in displacement

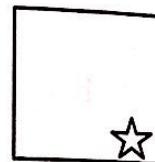
In the given series of figures, the position of an object / some object changes from one figure to the other.

Example: Find the next figure in the series.



A B C D E

The symbol star in the given set of figures moves by one side's length in the anti clockwise direction. The next figure will be



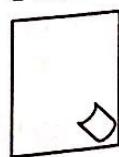
Category B: Change in direction

In the given series of figures, the direction of object(s) changes from one figure to the other. The changes can be observed to be in clockwise or anti-clockwise direction, magnitude of change in direction measurable in degrees.



A B C D E

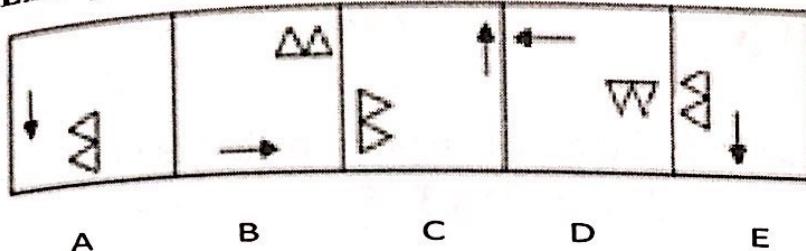
The symbol in the given set of figures rotates by 45° in the clockwise direction from one figure to the other. The next figure will be



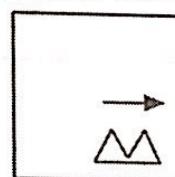
Category C: Change in position and direction

In the given series of figures, the direction of object(s) and their position changes from one figure to the other.

Example: Find the next figure in the series.



In the above diagram, the position and the direction of both the symbols have changed. The arrow rotates by 90° in the anti clock wise direction from one figure to the other within the square. The other figure rotates by 90° in the clock wise direction from one figure to the other within the square. With the same pattern, the next figure will be

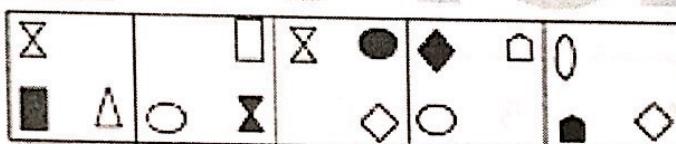


Category D: Replacement

The elements in the series are replaced with a new symbol in every step.

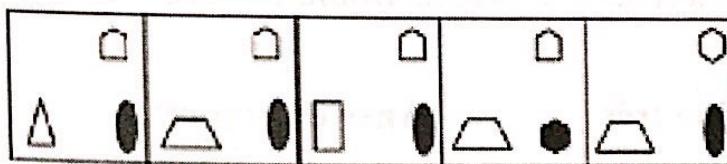
Example: Find the next figure in the series.

Question figure:



1 2 3 4 5

Answer Figures:



A B C D E

In the above question, in each figure, a new symbol replaces one of the existing symbols. The terms within the box also keep changing their positions in a particular order. With the same pattern, the next term will be

