

In coding-decoding, a word or a group of words will be given in the coded form. We need to understand the basis of coding (by decoding the word given) and on that same basis code another set of given words or group of words.

There are different types of questions that are asked in coding-decoding, which are provided in the subsequent sections.

27.1 | Type 1

A word is given in a coded form. We need to understand the basis of coding and on the same basis code another given word.

The basis used in such questions can also be categorised as follows:

1. The alphabets used for coding is same as the alphabets in the word, but rearranged on some basis.

Illustration 1

If CODING is coded as DOCGNI in a certain language, how will DOCILE be coded in the same language?

Solution: CODELL

Illustration 2

APPLE is coded as PAPEL in a certain language, how will ANGO be coded in the same language?

Solution: AMNOG.

Illustration 3

POSITION is coded as OPISITNO in a certain language, how will FUNCTION be coded in the same language?

Solution: UFCNTTNO.

The alphabets used for coding will be different as compared to the alphabets of the word. This basis can be fixed differences or increasing increments or decreasing differences. Also, the basis of coding need not be in the forward direction. It could be in the reverse direction also or it could be alternate alphabets from the front and the back.

Illustration 4

If CAREER is coded as DBSFFS in a certain language, how will SYSTEM be coded in the same language?

Solution: The basis of coding is alphabet plus 1 and the coding has been done in the forward direction.
So, SYSTEM will be coded as TZTUFN.

Illustration 5

If TRAIN is coded as UTDMS in a certain language, how will PLANE be coded in the same language?

Solution: The basis of coding is in the same direction as the word with increasing increments.

$$\text{So, } U = T + 1$$

$$T = R + 2 \text{ and so on.}$$

Therefore, PLANE will be coded as QNDRI.

Illustration 6

In a certain language, FASHION is coded as MLRSHZU. How will SAMSUNG be coded in the same language?

Solution: In a coding question, the basis used can be reverse alphabet equivalent. Each of the 26 alphabets in the language has a reverse alphabet equivalent.

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

The reverse equivalent of N is M, O is L, I is R, H is S, S is H, A is Z and F is M.

So, SAMSUNG is coded as HZNHFMT.

Illustration 7

In a certain language, LAKE is coded as 121115. How will RIPE be coded in the same language?

Solution: In a coding question, the basis used can be the position of the alphabet in the series.

Therefore, RIPE will be coded as 189165.

In all such questions, the position of the alphabets can be taken from the beginning or the end of the alphabet series.

27.2 | Type 2

Illustration 8

If red is called green, green is called blue, blue is called yellow and yellow is called red, what will be the colour of fresh grass in this language?

Solution: We know that the colour of fresh grass is green. Also, in this language, green is called blue, and so blue will be the colour of grass as per this language.

27.3 | Type 3

Illustration 9

If red means green, green means blue, blue means yellow and yellow means red in a certain language, what will be the colour of fresh grass in this language?

Solution: Many students make the mistake of not differentiating Type 3 from Type 2, whereas they are two different problems.

In the second question, our answer will be the colour green, and so our answer to the above example will be red.

27.4 | Type 4

A group of words are given in a coded form. We need to understand the basis of coding and on the same basis answer another question.

All such questions are to be done by comparing the statements taking two at a time. Also, many of us assume that the code is written in the same order in which the words have been given. This is not true always and should not be taken in the same order till the logic is checked.

Illustration 10

Directions for Questions 1–4: Read the following paragraph and answer the questions.

In a certain language, 'we are good' is written as 'koi hai nahi', 'good to last' is coded as 'hai theek toh' and 'last we are' is coded as 'nahi koi theek'.

1. What is the code for 'good', as per this language?

Solution: When we compare statements 1 and 2, the common word is 'good' and the common code is 'hai'. So, the code for 'good' will be 'hai'.

2. What is the code for 'last', as per this language?

Solution: When we compare statements 2 and 3, the common word is 'last' and the common code is 'theek'.

3. What is the code for 'to', as per this language?

Solution: 'Good to last' is coded as 'hai theek toh'. In this, the code for 'good' is 'hai' and the code for 'last' is 'theek'. So, the code for 'to' will be 'toh'.

4. What is the code for 'we' and 'are', as per this language?

Solution: We know that the code for 'we' and 'are' are 'koi' and 'nahin', but we do not know the exact codes. Hence, the correct answer for the codes of 'we' and 'are' cannot be determined.

27.5 | Type 5

A question like the previous one can use digits instead of alphabets or words. The basis of doing the question will remain the same.

Illustration 11

On the basis of certain coding rules, some words are coded as follows:

LIKE: 5678

KEPT: 7963

LOOK: 6225

Based on the above given codes, what is the individual code for each alphabet?

Solution: If we compare the first and the third, then the common alphabets are L and K and the common digits are 6 and 5. But, in coding KEPT, we have not used 5. Instead, we have used 6.

So, the code of K must be 6. Also, the code of L is 5 and the code of O is 2. The code of E is 7 and the code of I is 8. The code of P and T will be 9 and 3, in no particular order.

27.6 | Type 6: Questions on Input and Output

In all such questions, a group of words is given to an input machine, which converts it to output using certain logic. The usual logic in such questions is:

- The arrangement is done on the basis of the first alphabet of each word.
- The arrangement is done on the basis of the last alphabet of each word.
- The arrangement is done on the basis of the length of the word.

If the input-output question is based on a group of numbers, the logic used could be:

- The arrangement is done on the basis of odd and even numbers.
- The arrangement is done on the basis of squares and non-squares.
- The arrangement is done on the basis of prime and composite numbers.

Illustration 12

A group of words is provided to an input-output machine, which converts it into output using a certain language. What is the logic based on which the statements have been formed?

Input: Arrangement done basis odd and even numbers.

- Step 1: and arrangement done basis odd even numbers.
 Step 2: and odd arrangement done basis even numbers.
 Step 3: and odd done arrangement basis even numbers.
 Step 4: and odd done even arrangement basis numbers.
 Step 5: and odd done even basis arrangement numbers.
 Step 6: and odd done even basis numbers arrangement.

Step 6 is the output, and hence the final step.

Solution: The basis of coding in this question is the length of the alphabet. Also, if two words are of the same length, then the word having the earlier starting alphabet is the one that gets the priority.

For example, Input statement was: Arrangement done basis odd and even numbers. Now, 'odd' and 'and' are two words having the same length, but the starting alphabet of odd is 'o' while the starting alphabet of and is 'a'. So, 'and' gets the priority over odd.

27.7 Some Different Questions of Coding-Decoding

These questions of coding-decoding are different from the usual questions asked. Also, the chances of such questions being asked in competitive exams are not very high.

Illustration 13

The word EXAMINATION is coded in such a way that each alphabet is replaced by another unique alphabet and coded. What could be the possible code for the word?

Solution: In this question, like the previous one, the basis of coding has not been given. The solution to such questions is to match the number of alphabets and their code.

For example, the word EXAMINATION has two A's, two N's, two I's, one E, one M, one T, one X and one O. The code should also have the same structure. Also, in such questions, we will get the probable answer and not the exact answer.

Illustration 14

In a certain language, the word PRIZE is coded as QSHAD. Then, how will TAPER be coded in the same language?

Solution: The basis of coding in all vowels is coded with the previous alphabet, while all consonants are coded with the next alphabet. Hence, the code for TAPER will be UZQDS.

Solved Examples

1. If PRACTICE is coded as FQDSJBUD in a certain language, how will 'EXERCISE' be coded in the same language?

Solution: The word has been coded using an increment of +1 for all the alphabets taking one alphabet from the end of the word and the other alphabet from the beginning of the word.

So, the code for EXERCISE will be FFTYJFDS.

2. If MUTUAL is coded as UVNVBM in a certain language, how will DEPEND be coded in the same language?

Solution: The word has been split in the middle and each part consisting of three alphabets has been coded using an increment of +1. While the first part has been coded in the reverse direction, the second part has been coded in the forward direction.

If we take MUTUAL, MUT is coded as UVN while UAL is coded as VBM.

Therefore, the code for DEPEND will be QFEFOE.

3. If NATURE is coded as OCWYWK in a certain language, how will SHOWER be coded in the same language?

Solution: The basis of coding is in the forward direction with increasing increments of one. So, the code for N is O which is the immediate next alphabet while the code for A is C which is the alphabet with a gap of one alphabet.

Therefore, the code for SHOWER will be TJRAJX.

4. If MOTOR is coded as NLGLI in a certain language, how will SPORT be coded in the same language?

Solution: The basis of coding is to use the reverse alphabet equivalent for each alphabet. So, the code for M is N which is the reverse alphabet as shown below, the code for O is L and so on.

A	B	C	D	E	F	G
H	I	J	K	L	M	

Z Y X W V U T
S R Q P O N

Therefore, the code for SPORT will be HKLIG.

5. If light means fan, fan means TV, TV means fridge, fridge means microwave, microwave means washing machine and washing machine means light in a certain language, what do we use to watch programmes as per this language?

Solution: We use a TV to watch programmes and in this language if we say fan, it will mean a TV. So, as per this language, we use a fan to watch programmes.

6. If yellow is called red, red is called blue, blue is called green, green is called black, black is called brown and brown is called yellow in a certain language, what is the colour of grass as per this language?

Solution: The normal colour of grass is green and in this language, green is called black. So, black will be the colour of grass as per this language.

Directions for Questions 7–9: In a certain language, 'go and study' is coded as 'poda re', 'excel study to' is coded as 'da nani' and 'to remain and' is coded as 'napo ta'.

7. What is the code for 'go' in this language?

8. What is the code for 'remain' in this language?

9. What can be a possible way to write 'remain excel go' in this language?

Solution: If we compare 'go and study' and 'excel study to', the common word used is 'study' and the common code is 'da'. So, the code for study is 'da'.

If we compare 'go and study' and 'to remain and', the common word used is 'and' while the common code used is 'po'.

If we compare 'excel study to' and 'to remain and', the common word used is 'to' and the common code is 'na'.

So, the various codes being used in the question are as follows:

Study	da
And	po
Go	re
To	na
Excel	ni
Remain	ta

Answers:

7. re
8. ta
9. 'ta nire' can be used to express 'remain excel go'. Also, 'ta', 'ni' and 're' can be used in any order.