3. Coding and Decoding Tricks

Coding is a process in which a word, a number, or a series of combination of words and numbers is expressed in a particular code or pattern based on various rules. You have to answer the questions based on these set of rules.

Decoding is the process of (interpreting) deciphering the coded pattern and reverting it to its original form from the given codes. Hence, you are required to understand the logic behind the coding pattern and then apply this logic to find answers.

Handy Tips:

1. Letter positions as per English Alphabet Series: (A=1, B=2, C=3, D=4……Y=25, Z=26). To learn this, remember a shortcut for the position of letters i.e. EJOTY where E=5, J=10, O=15, T=20 & Y=25
2. Letter positions as per reverse English Alphabet Series (A=26, B=25, C=24 …., Z=1)
3. Corresponding letter of each letter i.e., the pair of letters at the same distance from start and end of the English Alphabet Series (A is opposite to Z; B is opposite to Y, and C is opposite to X and so on) and to learn this one can use different acronyms for e.g. for AZ –> AZar; BY –> BYe; CX –> CruX; DW –> DeW and so on. This topic can be divided in to the following subtopics based on the logic incorporated:

(I) Coding – Decoding by Letter Shifting:

In this method, one or more English words are given with their respective codes. The coding is based on shifting the positions of the individual letters based on their place in the English Alphabet. You have to identify a common pattern and apply the same pattern to the word in the question to find its code or apply the reverse pattern to the given code to find the original word.

Example 1:

In a certain code ‘MONARCHY’ is written as ‘NPOBSDIZ’. How will ‘STANDARD’ be written in that code?

Solution:

In this question, each letter of ‘MONARCHY’ is simply replaced by its next letter as per English Alphabet.

M + 1 = N;
O + 1 = P;
N + 1 = O;
A + 1 = B;
R + 1 = S;
C + 1 = D;
H + 1 = I;
Y + 1 = Z.

Based on similar pattern, code for ‘STANDARD’ is ‘TUBOEBSE’.

Let’s take a slightly more complicated example.

**Example 2:**
In a certain code ‘ARCHERY’ is written as ‘DSBGZSF’. How will the word ‘TERMITE’ be written in that code?

**Solution and Steps Involved:**

1. Write down the letters in one line and its code in the line below.

2. Analyze the coding pattern by matching the code with the word.

   ![Diagram]

   We can see that the word has been divided into three parts, where letters of the first and third parts are increased by 1 position and then reversed among themselves while the lone letter in the middle part is decreased by 1.

   **NOTE:** Here increasing or decreasing by ‘n’ place means, exchanging the current letter with a letter that is ‘n’ places to the right or left, respectively, in the English Alphabet.

3. Once the pattern has been identified, find the code for the word asked in the question:
Hence, code for TERMITE is ‘SFULFUJ’

**Variations:**

a. Just the jumbling of letters with no substitution by any other letter: The jumbling can be done directly or by dividing the given word in multiple parts and jumbling each part separately.

**Try It Yourself 1 (TIY1):**

In a certain code ‘COUNTERS’ is written as ‘SRETNUOC’. Then find out how ‘CLEARING’ is written in that code language?

(a) CGLNEIAR  
(b) GNIRCLEA  
(c) GRINGACLE  
(d) CLEANRIG  
(e) GNIRAELC

**NOTE:** Leave your answers for Try It Yourself Examples in the comments. State the TIY No. and the answer option or the answer itself.

**Try It Yourself 2 (TIY2):**

In a certain code ‘STRATEGIC’ is written as ‘TSARTGECI’. Then find out how ‘STIPULATE’ is written in that code language?

(a) USTIPALET  
(b) PLATEUSTI  
(c) TSPIUALET  
(d) PULATESIT  
(e) TIPSUATEL

b. Just the shifting of letters, which can be done in any pattern:

(i) Shifting of all the letters by a constant value.

**Try It Yourself 3 (TIY3):**

If VXUPLVH is written as SURMISE, what is OHPRQ the code for?

(a) LEMON  
(b) OPENS  
(c) MELON  
(d) NAMED  
(e) RKSUT

(ii) Shifting of all letters by an increasing or decreasing value.
TIY 4:

In a certain code language, the word ‘NEATLY’ is written as ‘WORDCQ’ and the word PRAISE is written as ‘CVGDPS’. How will the word ‘SUMMIT’ be written in that code language?

(a) PSVRLK  (b) VSPKLR  (c) RLKPSV  (d) KLRVSP  (e) None of these

c. Jumbling of letters as well as shifting of the letters:

(i) Both the processes may be followed in the whole word. (as seen in Solved Example 2.)

(ii) It can also be that jumbling is done in one part and shifting is done in another part.

TIY 5:

In a certain code, ‘GRANDEST’ is written as ‘NARGFHWY’. Then what is the code for ‘MOTHERLY’?

(a)ORXMGUPD (b)HTOMGUPD (c)HTOMYLRE (d)YLREHTOM (e)None of these

(II) Coding Letters of a Word:

In these questions, the letters of one or more words are coded in terms of symbols/digits/other letters. You have to identify the code of the individual letter by comparing and based on this, find out the code for given word.

Types:

A. There is a one to one relation between letters and the code, which you can identify by just comparing letters with the code of same place value.

Example 3:

In a certain code ‘CAMPHOR’ is written as ‘6$3#152’ and ‘SAKE’ is written as ‘@$98’. How is ‘MORSE’ written in that code language?

Solution and Steps Involved:

1. Write down letters and codes corresponding to their position.
2. Check common letters in given words and their codes.
3. If the common letter has same code each time, highlight the letters that are part of the word that has been asked in the question.
4. Rewrite the word in the question and corresponding codes below each letter. (Remember here order of letters will matter.)

M O R S E
3 5 2 @ 8

Hence, the code for ‘MORSE’ is ‘352@8’.

Variations:

a. Letters are coded as other letters without any letter shifting or jumbling. These may appear tough as you might be looking for letter shifting patterns. But there is only direct correspondence between the letters of the word and the letters of the code and no other relationship exists.

Example 4:

If CARING is coded as MPDRGF, and SHARES is coded as XLPDUX, how could CASKET be possibly coded in the same code?

(a) MPXBUN  (b) MXPGUN  (c) MPDDUX  (d) LMPGFR  (e) FGRDXP

Solutions and Steps Involved:

1. First establish correspondence.

2. Find the common codes.

3. If the common letter has same code each time, highlight the letters that are part of the word that has been asked in the question.
4. Rewrite the word in the question and corresponding codes below each letter. (Remember here order of letters will matter.)

5. If there are letters in the question word whose codes you can’t find, then leave them blank.

C A S K E T
M P X U

6. For the possible answer, check the options. The blank spaces must not be filled with any of the remaining codes from the given question. It must be filled with new codes. There will be only one such answer. In the given question, the blank spaces cannot be filled with D,R,G,F or L.

From the given options, we can see that the answer is

CASKET → MPXBN

NOTE: When asked to find a possible code, remember that there is no need to find the exact code. In fact, there may be many possible correct codes. You just need to find the code among the options that could be a fit. This can be accomplished by finding the codes of the letters that are definitely there. And the rest of the code can be found out by removing the letters that shouldn’t be in the code. Then find the correct code from the options.

b. When the positions do not strictly correspond one to one.

TIY 6:

The entities in the code are not necessarily in the same order as the letters in the word for which they stand. If the first two words given on the left are coded as the words given on the right, which of the following could be a possible code for the third word?
(a) ptbq  (b) ztof  (c) mtaf  (d) ftcz  (e) None of these
Here, the first and the last letters are both consonants, so we need to apply condition (ii).

3. Write down the code as per given series
The code of the word as per given conditions:

BELGIUM
2 $ 8 1 3 © 4

4. Apply the condition identified above to get the final answer.
On applying condition (ii), we have to change the codes for the first and the last letter as ®. Hence, code for ‘BELGIUM’ ⇒ ® $ 8 1 3 © ®

Variations:

a. The conditions might be given for letters other than the first and the last letter.

TIY 7,8,9:

In the question below, a group of letters or word is given followed by some conditions. You have to find the code for the word based on the following letter coding system.

Letters
MLEGSKURBWCAP
Digit/Symbol 4 8 $ 1 # 5 7 © 2 6 % ⋆ 3 9 @

Conditions:
(i) if more than two vowels are there in the group of letters, all vowels are to be coded as ‘€’
(ii) if third letter is a consonant, code the letter as ‘b’.
(iii) if fifth letter is a vowel, code the letter as ‘d’

Now find the code for

TIY 7: AGUMKE
TIY 8: BEWSMU
TIY 9: KGAPUB

b. The conditions might be given on position values of letters in the English Alphabet instead of them being Vowels and Consonants.

TIY 10,11,12:

In the below question a group of letters or word is given followed by some conditions. You have to find the code for the word based on the following letter coding system.
Conditions:

(i) if the sum of positions of first and second letters of the word is 8 then both are to be coded as ‘Ö’

(ii) if product of positions of letters at even positions of the word are 24 then they are to be coded as ‘d’

(iii) if difference of positions of third and fifth letters of the word is 8 then they are to be coded as ‘€’

Now find the code for

TIY 10: WHKPAC
TIY 11: BRGSAU
TIY 12: HBRMCI

(III) Coding by Analogy:

Analogy means ‘correspondence’. In the coding questions based on analogy, a relationship is given between entities and another relationship or expression has to be identified/calculated based on this analogy. Analogy is meant to test one’s ability to reason and follow certain rules.

Types:

A. In these types of questions, mathematical operators are coded as some letters or numbers. Subsequently, a mathematical expression is given with letters or numbers written between the numbers. You have to calculate the value of the expression based on the given conditions.

Example 6:

If ‘Q’ denotes ‘×’; ‘R’ denotes ‘-’, ‘T’ denotes ‘÷’ and ‘W’ denotes ‘+’, then find the value of the expression 20R12T4Q6W5.

Solution and Steps Involved:

1) Write down the given expression as it is and write down the rules so that you don’t need to refer the question again and again

Given expression is: 20R12T4Q6W5

The relations are as following:
Q R T W
Denotes
× – ÷ +

2) Replace the letters/numbers/operators as per given relations.

On substituting the letters as per the given rules, the expression becomes:

20 – 12 ÷ 4 × 6 + 5

3) Apply the BODMAS rule to correctly solve the expression to get the final answer.

Solving the above expression using BODMAS rule:

20 – [(12 ÷ 4) × 6] + 5
= 20 – [3 × 6] + 5
= 20 – [18] + 5
= 25 – 18 = 7

Variations:

a. The relations can be given between a pair of operators instead of letters and operators, for example, ‘+’ is coded as ‘×’; ‘-’ is coded as ‘÷’, and so on.

Try It Yourself 13 (TIY 13):

If ‘+’ means ‘-’, ‘-’ means ‘×’, ‘×’ means ‘÷’ and ‘÷’ means ‘+’, then what is the value of ‘38 ÷ 336 × 24 – 2 + 18 =?’

(a) 118  (b) 86  (c) 12  (d) 48  (e) None of these

b. The relations can be given between symbols and operators, for example, ‘×’ is coded as ‘@’; ‘+’ is coded as ‘$’, and so on.

TIY 14:

If ‘%’ means ‘-’, ‘@’ means ‘-’, ‘&’ means ‘+’ and ‘#’ means ‘÷’, then what will be the average of five consecutive even numbers where ‘R’ is the smallest number?

(a) R & 10 # 5  (b) R & 4  (c) 40 # R & 5  (d) (R & 20) # 2  (e) None of these
B. In this category, successive analogies between many words is given. You need to find the code of the given new word. The code is deciphered by relating the word according to the given conditions.

Example 7:

If ‘red’ means ‘white’, ‘white’ means ‘yellow’, ‘yellow’ means ‘blue’, ‘blue’ means violet’ and ‘violet’ means ‘red’, then which of the following represents the color of mustard flower?

Solution and Steps Involved:

a. First, you need to know the word you are looking for.

We know that mustard flower is originally of color yellow.

b. Then check the coding of that word as per the question.

But, in the given question, it is given that in the code ‘white’ stands for ‘yellow’. Therefore the correct answer is ‘white’.

NOTE: In the above example, it is important to avoid two common mistakes. Know which is the code and which is the word. Different wordings give you different ways of understanding the question. If the question reads ‘A’ means ‘B’ then A is the code for the word B. So if we want color B, then we use the code A. We can’t use it the other way around. If the question reads ‘A is B’ then A is the word and B is the code. If the question reads ‘A is called B’ then clearly A is the word and B is the code.

Also, it is important not to follow the trail. Meaning if ‘A is B’, ‘B is C’, ‘C is D’, and you need to find the code for A, then the answer is B and not C or D. In the example above, Your answer ‘yellow’ is coded as ‘white’, and ‘white’ is coded as red and so on. However, we don’t need to look beyond the first relation i.e. code for yellow. Rest of the codes are just there to confuse you.

(IV) Coding decoding based on operations on place value:

In this type of questions, one or more words are given and some numeric value is given against them. You have to find out the relation between place values of letters of that word as per English Alphabet and the number given against it. You have to apply the same relation to find the numeric value of the word asked in the question.

Example 8:

If the code for ‘HEN’ is 27, what will be the code for ‘ASK’?

Solution and Steps Involved:
1) Write down the word given in the question and place value of each of its letters as per the English Alphabet below it.

HEN
8 5 14 → As per their place in the English Alphabet

2) Try to identify a relation between these position values and the number given against the word.

HEN is given as 27.

We can see, 27 = 8 + 5 + 14.

Hence, we have figured out a relation: The given number is the sum of the place values of the letters according to the English Alphabet.

3) Write down the position values of the letters of the word asked in the question.

ASK
1 19 11

4) Apply the same relation between the position values of this word to find the final answer.

Hence, code for ‘ASK’ is:

1 + 19 + 11 = 31

Variations:

a. The relation can be more complex than just the sum of the position values.

TIY 15:

If Code for ‘RAT’ is ‘9267’, then what is the code for ‘MET’?

TIY 16:

If code for ‘BOY’ is ‘267’ then what is code for ‘GIRL’

(V) Coding – Decoding in Fictitious Language:

In this type of question, two or more statements are given against each of which a string of random codes is given. You need to identify common words between any pair of statements and common codes in their respective strings of codes to find out the codes of these common words.
Keep doing this until all such comparisons are exhausted and you have found out the codes for all the words possible.

**Example 9:**

**Directions:** In a certain code, ‘calendar contains all holidays’ is coded as ‘si ma ke du’; ‘holidays are real fun’ is coded as ‘si vt gs tm’; ‘juice contains real fruit’ is coded as ‘ma ky gs mk’ and ‘fun and fruit calendar’ is coded as ‘ke lm mk ze’.

How will ‘fruit contains real juice’ be coded in this code language?

**Solution and Steps Involved:**

1) Write down all the statements and their codes one after another.

2) Pick any two statements which have common word(s) and compare their code strings to find out the common codes between them.

3) Highlight common words and common codes in a unique fashion.

In statements 1 and 2, ‘holidays’ is the common word and ‘si’ is the common code, hence, code for ‘holidays’ is ‘si’ which we have highlighted by drawing a box around them.

4) Continue this process until all such cases are exhausted.

From statement 1 and 3, ‘contains’ is the common word and ‘ma’ is the common code, hence, code for ‘contains’ is ‘ma’ which we have circled.

Similarly, we will compare other pair of statements to find out the codes for rest of the words.

Hence,
Code for ‘fruit’ → ‘mk’

Code for ‘calendar’ → ‘ke’

Code for ‘fun’ → ‘tm’

Code for real’ → ‘gs’

Code for ‘juice’ → ‘ky’ (because only ‘juice’ and ‘ky’ is left in statement 3)

Now pick the words asked in the question and their corresponding words to get the final answer.

Hence, code for ‘fruit contains real juice’ is ‘mk ma gs ky’.

Variations:

a. In place of the code for whole string, code for individual words might be asked

TIY 17:

In a certain code “res tur dimi wez” means “my pointer was theft”; “soz res lem ner” means “your pointer is here”; “res zet tur lem” means “blue pointer was here” and “dimi res tur soz” means “your pointer was theft”. Which of the following is the code of the word “here”?
(a) tur (b) ner (c) dimi (d) lem (e) None of these

b. A code or string of codes might be given and you will need to decode it.

TIY 18:

In a certain code, ‘solution it correct’ is written as ‘fi jb nu’; ‘When is it’ is written as ‘fi be vi’; ‘correct for here’ is written as ‘sc to jb’ and ‘here she is’ is written as ‘li be to’. What does the code ‘sc’ stand for?
(a) here (b) for (c) she (d) correct (e) None of these

(V) Coding – Decoding by Pattern Weights:

In this type the letters of the word are assigned weights (values) depending on whether they are vowels/consonants, the number of letters in the word, and the pattern of arrangement. The rest is a one-to-one correspondence. The codes could be repeated.
Example 10:
ONE → (5)(15)(10)
ACT → (10)(5)(15)
WOW → (10)(5)(10)
OUT → (10)(15)(20)
CUT → (35)(20)(5)
MOO → (30)(10)(10)
END → (10)(5)(15)

If the words given above are coded thus, then what should be the code for ‘OWL’?

Solution and Steps Involved:

1) Identify the pattern among the given words. For example, the word (ONE) beginning with and ending with different vowels and with a consonant in the middle is coded as (5)(15)(10). Similarly, the word (WOW) beginning and ending with the same consonant and with a vowel in the middle is coded as (10)(5)(10).

2) Identify the pattern of the question word. And find the word in the list that matches this pattern. In the given question, OWL begins with a vowel and the remaining two letters are different consonants. The word in the list that matches this pattern is END.

3) The code for the matching word is the code required.
So OWL → (10)(5)(15)

Apply these tips to crack the code of Coding and Decoding for bank exams. Good luck!

ANSWER KEY for TRY IT YOURSELF (TIY) in PART 1 and PART 2:

1. e  2. c  3. e  4. c  5. b  6. a
7. €1€45€  8. 2$β#4©  9. 519@δ2  10. 6*5@9%  11. 27€#€©  12. *δ78%δ

<table>
<thead>
<tr>
<th>Column – I</th>
<th>Column – II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) he need your company often</td>
<td>nik cik hik yik fik</td>
</tr>
<tr>
<td>(ii) he do not have company</td>
<td>cik tik hik vik bik</td>
</tr>
<tr>
<td>(iii) do not need to beat often</td>
<td>fik sik tik bik nik lik</td>
</tr>
<tr>
<td>(iv) your company do need it</td>
<td>cik yik nik bik pik</td>
</tr>
<tr>
<td>(v) you have to do it</td>
<td>bik vik sik rik pik</td>
</tr>
</tbody>
</table>

1. What is the code for ‘have’?
   1. pik
   2. bik
   3. vik
   4. rik
   5. sik
Answer 3. vik

2. Which word is coded as ‘lik’?
   1. do
   2. not
   3. often
   4. need
   5. beat

Answer 5. beat

3. What is the code for ‘you do not beat’?
   1. bik rik tik cik
   2. rik bik tik lik
   3. yik bik tik rik
   4. cik lik bik tik
   5. None of these

Answer 2. rik bik tik lik

4. What is the code for ‘company to need you’?
   1. cik sik nik pik
   2. nik cik sik fik
   3. cik sik nik rik
   4. rik nik pik cik
   5. None of these

Answer 3. cik sik nik rik

5. What can be the code for ‘company need your thoughts’?
   1. nik yik cik bik
   2. cik bik yik rik
   3. yik cik nik mik
   4. bik pik cik sik
   5. yik rik bik mik

Answer 3. yik cik nik mik

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SYMBOL</td>
<td>$ @69 #8</td>
</tr>
<tr>
<td>2. MOBILE</td>
<td>@ $ @6 #</td>
</tr>
<tr>
<td>3. RELATE</td>
<td>@ $ 3 ? #</td>
</tr>
<tr>
<td>4. MOSTLY</td>
<td># $ @2 ?</td>
</tr>
<tr>
<td>5. TRAVELOG</td>
<td>$ 3 2 ? 6</td>
</tr>
<tr>
<td>6. BEST</td>
<td>@ # @ 2</td>
</tr>
</tbody>
</table>
1. **What is the code for ‘Y’?**
   1. $  
   2. 9  
   3. 8  
   4. #  
   5. ©

   **Answer** 3. 8

2. **What is coded as ‘5’?**
   1. I  
   2. L  
   3. E  
   4. M  
   5. T

   **Answer** 4. M

3. **What can be the code for ‘GEAR’?**
   1. α?36  
   2. ?3a5  
   3. a36@  
   4. 36?#  
   5. None of these

   **Answer** 1. α?36

4. **What is coded as ‘$@5’?**
   1. LITE  
   2. LATE  
   3. LIME  
   4. LOST  
   5. REST

   **Answer** 3. LIME

5. **What can be the code for ‘BOMBAY’?**
   1. #95#63  
   2. #95’68  
   3. #95@38  
   4. 59#538  
   5. #95#68

   **Answer** 5. #95#68
Q(1 –5) Study the information below and answer the following question: –
In a certain code language, ‘committee to protect journalists’ is written as ‘es fr re pt’,
‘protect people in city’ is written as ‘ch ba mo fr’
‘people to follow on’ is written as ‘re dv ch gi’
‘follow tips to protect’ is written as ‘re gi fr yu’
(All the codes are two-letter codes only.)

Explanation
To – re
Protect – fr
People – ch
Follow – gi
on – dv
tips – yu
Committee / Journalists – pt / es
city / in – ba / mo

1. **What is the code for ‘city’ in the given code language?**
   A. mo
   B. yu
   C. ch
   D. Other than those given as options
   E. Either ‘ba’ or ‘mo’

   **Answer – E. Either ‘ba’ or ‘mo’**

2. **In the given code language, what does the code ‘pt’ stand for?**
   A. follow
   B. Either ‘journalists’ or ‘committee’
   C. city
   D. protect
   E. Either ‘city’ or ‘in’

   **Answer B. Either ‘journalists’ or ‘committee’**

3. **What may be the code for ‘Protect us’ in the given code language?**
   A. dv iq
   B. iq gi
   C. iq fr
   D. gi es
   E. fr dv

   **Answer C. iq fr**
4. What is the code for ‘to’ in the given code language?
   A. mo
   B. fr
   C. gi
   D. dv
   E. re

   Answer: E. re

5. If ‘follow on twitter’ is coded as ‘dv wz gi’ in the given code language, then what is the code for ‘Tips on twitter’?
   A. wz ch es
   B. dv wz yu
   C. yu mo wz
   D. fr es wz
   E. ch yu fr

   Answer: B. dv wz yu

Q(6 –10) Study the information below and answer the following question: –

In a certain code language,
‘beautiful flowers for women’ is written as ‘di mi bo ge’,
‘tips for working women’ is written as ‘so li ge mi’
‘women like to give’ is written as ‘ge fx wr ct’
‘give beautiful tips and’ is written as ‘bo so ct ym’
(All the codes are two-letter codes only.)

Explanation

to / like – wr /fx
women – ge
give – ct
for -mi
beautiful – bo
flowers – di
tips – so
working – li
and – ym

6. What may be the possible code for ‘Tips please’ in the given code language?
   A. so fx
   B. ge so
   C. ct bo
   D. so mu
   E. None of the Above

   Answer: D. so mu
7. **What is the code for ‘give’ in the given code language?**
   A. so  
   B. ge  
   C. ct  
   D. mu  
   E. None of the Above  
   
   Answer C. ct  

8. **In the given code language, what does ‘and’ stands for?**
   A. so  
   B. ge  
   C. ct  
   D. mu  
   E. ym  
   
   Answer E. ym  

9. **What is the code for ‘women’ in the given code language?**
   A. so  
   B. ge  
   C. ct  
   D. mu  
   E. ym  
   
   Answer B. ge  

10. **What is the code for ‘like’ in the given code language?**
    A. Either so or ct  
    B. ge  
    C. Either fx or wr  
    D. mu  
    E. other than those given as options  
    
    Answer C. Either fx or wr