

Coding-Decoding

Definition: In this type of test secret messages or words have to be deciphered or decoded. They are coded according to a definite pattern or rule which should be identified first. Then the same rule be applied to decipher another coded word or message.

Types of Coding-Decoding

1. Letter coding ✓
2. Coding by Analogy ✓
3. Coding in Fictitious Languages ✓
4. Coding by substitution ✓
5. Coding by shifting words ✓
6. Coding based on conditions ✓
7. Mathematical operation Based coding ✓

Numerical Value	Alphabets	Reverse	Numerical Value
1	A	Z	26
2	B	Y	25
3	C	X	24
4	D	W	23
5	E	V	22
6	F	U	21
7	G	T	20
8	H	S	19
9	I	R	18
10	J	Q	17
11	K	P	16
12	L	O	15
13	M	N	14

1. LETTER CODING

(i) Coding by shifting letters

Example: In a certain code language the word METAL is coded as LDSZK. How will the word ZINC be written in that language?

Solution:

M	E	T	A	L
-1↓	-1↓	-1↓	-1↓	-1↓
L	D	S	Z	K

Similarly,

Z	I	N	C
-1↓	-1↓	-1↓	-1↓
Y	H	M	B

Note: For coding concepts, you must know about numerical order of alphabet, which is A to Z.

Example:

A	B	C	D	E	F	G	H	I	J
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
1	2	3	4	5	6	7	8	9	10
		K	L	M	N	O	P		
		↓	↓	↓	↓	↓	↓		
		11	12	13	14	15	16		
Q	R	S	T	U	V	W	X	Y	Z
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
17	18	19	20	21	22	23	24	25	26

(ii) Coding by re-arranging letters

Example: In a certain code language the word NUMERICAL is written as LMUIREACN. How will be the word PUBLISHED be written in that language?

Solution:

N U M E R I C A L ⇒ L M U I R E A C N
 1 2 3 4 5 6 7 8 9 ⇒ 9 3 2 6 5 4 8 7 1

Therefore,

P U B L I S H E D $\Rightarrow$ D B U S I L E H
1 2 3 4 5 6 7 8 9 $\Rightarrow$ 9 3 2 6 5 4 8 7 1

2. CODING BY ANALOGY

(i) Coding by shifting letters

Example: In a certain code language PEAR is written as RCCP and AUNT is written as CSPR. How is LAND written in that code?

Solution:

P E A R A U N T
+2↓ -2↓ +2↓ -2↓ and +2↓ -2↓ +2↓ -2↓
R C C P C S P R

Similarly,

L A N D
+2 -2↓ +2↓ -2↓
N Y P B

12 1 14 4
L A N D
+2↓ -2↓ +2↓ -2↓
N Y P B
14 25 16 2

(ii) Digit-coding

Example: In a certain code ROAM is written as 5913 and DONE is written as 4962. How is MEAN written in that code?

Solution:

Letter	A	D	E	M	N	O	R
Code	1	4	2	3	6	9	5

Similarly,

M E A N
↓ ↓ ↓ ↓
3 2 1 6

D R E A M
9 % 4 7 *

(iii) Symbol Coding

Example: In a certain code BROTHER is written as \$%53#4% and DREAM is written as 9%47*. How is THREAD written in that code?

Solution:

Letter	A	B	D	E	H	M	O	R	T
Code	7	\$	9	4	#	*	5	%	3

Similarly:

T H R E A D
↓ ↓ ↓ ↓ ↓ ↓
3 # % 4 7 9

B R O T H E R
↓ ↓ ↓ ↓ ↓ ↓ ↓
\$ % 5 3 # 4 %

↓ ↓
3 # % 4 7 9

T H R E A D
3 # % 4 7 9

3. CODING IN FICTITIOUS LANGUAGE

Example: In a certain code 'nik ma de' means 'he has come' 'de lit pa' means 'come here fast' and 'ma la se' means 'she has gone'. What is the code for 'he'?

Solution: We have,

nik ma de $\Rightarrow$ he has come
de lit pa $\Rightarrow$ come here fast
ma la se $\Rightarrow$ she has gone

Word		Code
He	-	nik
Has	-	ma
Come	-	de

nik ma de

he has come

... (i)

... (ii)

... (iii)

Here - lit/pa
Fast - lit/pa
She - la/ se
Gone - la/se
'He' code is 'nik'

4. CODING BY SUBSTITUTION

Example: White means black, black means red, red means blue, blue means yellow and yellow means grey, then which of the following represents the colour of clear sky?

Solution: Clearly, we know that, the actual colour of sky is blue, and as given blue means yellow. Hence, the colour of sky is yellow.

5. CODING BY SHIFTING WORDS

Example: If the sentence 'layman can practice successful psychotherapy without great training' is written as 'practice without successful layman training psychotherapy can great' in a certain code, then how will 'I would have to think all the time' be written in that code?

Solution: Layman can practice successful psychotherapy without great training
1 2 3 4 5 6 7 8

Then after coding

3 6 4 1 8 5 2 7
practice without successful layman training psychotherapy can great

Similarly,

I Would have to think all the time
1 2 3 4 5 6 7 8

then after coding

3 6 4 1 8 5 2 7
Have all to I time think would the

6. CODING BASED ON CONDITIONS

Example:

Directions (1-3): Digits in the number given in each of the following questions are to be coded based on the codes and the condition given below:

Digit	2	9	4	6	3	8	1	7	5	0
Code	P	M	R	K	T	V	B	W	F	D

Conditions:

(i) If both the first and the last digits of a number are odd numbers, they should be coded as 'Z'.

(Odd)

(ii) If both the first and the last digits of a number are even numbers, they should be coded as 'A'.

(Even)

Questions and Solutions:

Q.(1) 9 3 8 7 5 2

= No conditions are applied

⑨ 3 8 7 5 ②
↓ ↓ ↓ ↓ ↓
M T V W F P

Q.(2) 3 7 2 5 8 1

= Condition (i) Applies

③ 7 2 5 8 ①
↓ ↓ ↓ ↓ ↓
Z W P F V Z

Q.(3) 8 4 3 7 2 6

Condition (ii) Applies

8 4 3 7 2 6
 ↓ ↓ ↓ ↓ ↓ ↓
A R T W P A

7. MATHEMATICAL OPERATION BASED CODING

Example: If the alphabets are assigned values such as A = 3, D = 6, G = 8, I = 2, L = 4, and T = 5 then what is the sum of values of all the alphabets in the word DIGITAL?

Solutions:

A	D	G	I	L	T
3	6	8	2	4	5

$$6 + 2 + 8 + 2 + 5 + 3 + 4 = 30$$

D I G I T A L
 6 + 2 + 8 + 2 + 5 + 3 + 4 30//

- (i) Alphabets and their numerical/place values play an important role in most of the part of reasoning like in coding decoding, machine input, alphabet series etc.
- (ii) You should have these values on your tips to solve the problems faster and smarter.

1. If in a certain code, LUTE is written as MUTE and FATE is written as GATE, then how will BLUE be written in that code?

LUTE → MUTE (L+1, U+1, T+1, E+1)
 FATE → GATE (F+1, A+1, T+1, E+1)
 BLUE → ? (B+1, L+1, U+1, E+1) = C L U E

2. In a certain code, BASIC is written as DDULE. How is LEADER written in that code?

BASIC → DDULE (B+2, A+3, S+2, I+3, C+2)
 LEADER → ? (L+2, E+3, A+2, D+3, E+2, R+2) = N H C G G U

3. In a certain code "UNDER" is written as "6152@" and "DEAF" is written as "52#7". How "FRAUD" is written in that code

U N D E R D E A F
 6 1 5 2 @ 5 2 # 7
 F R A U D
 7 @ # 6 5

4. In a certain code language, 'coll tip ~~not~~' means 'singing is appreciable', '~~not~~ ~~baj~~ min' means 'dancing is good' and 'tip ~~nop~~ ~~baj~~' mean 'singing and dancing', which of the following means 'good' in that code language?

Good - min

5. In a certain code,
 '786' means 'study very hard', ✓
 '958' means 'hard work pays' and
 '645' means 'study and work'. ✓
 Which of the following is the code for "very"?

study - 6	Work - 5
Very - 7	pays - 9
Hard - 8	and - 4

6. In a certain code language,
 'mink yang pe' means 'fruits are ripe',
 'pe lao may mink' means 'oranges are not ripe' and
 'may pe nue mink' means 'mangoes are not ripe'.
 Which word in that language means 'mangoes'?

Fruits - yang
 are - pe/mink
 ripe - pe/mink
 oranges - lao
 not - may
 Mangoes - nue

In a language 'truck is train', 'train is tractor', 'tractor is ship', ship is aero plane', aero plane is bulldozer', 'bulldozer is scooter' then in that language.

40. Which of the following can fly → bulldozer

Which of the following can travel in water → aeroplane

In a certain language black is called white, white is called red, red is called green, green is called yellow, yellow is called pink, pink is called brown and brown is called saffron then

What is color of milk → red

What is color of human blood → green

What is color of leaf → yellow



