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

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

(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

(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

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 ⇒ he has come ... (i)

de lit pa ⇒ come here fast ... (ii)

ma la se ⇒ she has gone ... (iii)

Word		Code
He	-	nik
Has	-	ma
Come	-	de

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'.

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

Questions and Solutions:

Q.(1) 938752

No conditions are applied

9	3	8	7	5	2
↓	↓	↓	↓	↓	↓
M	T	V	W	F	P

Q.(2) 372581

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

(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.

TIPS AND TRICKS: In order to solve such questions quickly you need to memorize the following table of the reverse and the numerical values the ranks of the alphabets:

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

(iii) There are some pair of words which help to learn you these values more easily.

E	J	O	T	Y
5	10	15	20	25

C	F	I	L	O	R	U	X
3	6	9	12	15	18	21	24

(iv) When 26 alphabets are breaked into two series i.e., first 13 and last 13 alphabets and placed parallel to each other then, they make an 'opposite letter series'. This series also has an important role in multiple topics and mainly in coding decoding. The opposite letter series is given below:

A – Z = **AZ**ad
B – Y = **BoY**
C – X = **CraX**
D – W = **DraW**, **DeW**
H – S = **H**igh **S**chool, **H**arbhajan **S**ingh
I – R = **I**ndian **R**ailway
J – Q = **J**ungle **Q**ueen, **J**ack **Q**ueen
K – P = **K**evin **P**ietersen

E – V = **EV**en, **EV**ening
F – U = **FU**el
G – T = **G**a**T**e, **G**ame of **T**hrones
L – O = **LO**ve
M – N = **Ma**N
[Note: some combination of words is given to memorise these pairs easily.]

EXERCISE

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?
(a) CLUE (b) GLUE (c) FLUE
(d) SLUE (e) None of these

2. If in a certain language, MADRAS is coded as NBESBT, how BOMBAY coded in that language?
(a) CPNCBX (b) CPNCBZ (c) CPOCBZ
(d) CQOCBZ (e) None of these

3. If FISH is written as EHRG in a certain code, how would JUNGLE be written in that code?
(a) ITMFKD (b) ITNFKD (c) KVOHMF
(d) TIMFKD (e) None of these

4. In a certain code, TWINKLE is written as SVHOJKD then how would FILTERS be written in that code?
(a) EHKSDQR (b) EHKUDQR (c) EGHUDQR
(d) GJMSFST (e) None of these

5. In a certain code, ROAD is written as URDG. How is SWAN written in that code?
(a) VXDQ (b) VZDQ (c) VZCP
(d) UXDQ (e) None of these

6. If in a certain code, CHILDREN is written as BGHKESFO. How is GEOMETRY written in that code?
(a) FDNMFUSX (b) FDNLFUSZ (c) HDNMFUTY
(d) HDMNFUTZ (e) None of these

7. In a certain code, FAVOUR is written as EBUPTS. How is DANGER written in that code?
(a) CBFFDS (b) CBMHDS (c) EBFHDS
(d) EBHHFS (e) None of these

8. In a certain code, Productions is written as QQPCVEUHPMT. How is ORIENTATION written in that code?
(a) PQJDOVBSJNO (b) PQJDOUBUJPO
(c) PSJFOVBSJNO (d) NSHFMVBSJNO
(e) None of these

9. If in a code, MIND becomes KGLB and ARGUE becomes YPESC, then what will DIAGRAM be in that code?
(a) BGYEPYK (b) BGYPYEK (c) GLPEYKB
(d) LKBGYPK (e) None of these

10. In a certain code, BASIC is written as DDULE. How is LEADER written in that code?
(a) NGCFGT (b) NHCGGU (c) OGDFHT
(d) OHDGHU (e) None of these

11. In a certain code "UNDER" is written as "6152@" and "DEAF" is written as "52#7". How "FRAUD" is written in that code
(a) 7@6#5 (b) 72#65 (c) 7@#65
(d) 6@7#5 (e) None of these

12. In a certain code language, 'coll tip mot' means 'singing is appreciable, 'mot baj min' means 'dancing is good' and 'tip nop baj' mean 'singing and dancing', which of the following means 'good' in that code language?
(a) Not (b) min (c) baj
(d) Cannot be determined (e) None of these

13. 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'?
(a) May (b) pe (c) nue
(d) mink (e) None of these

14. In a certain code language, 'tom kun sud' means 'dogs are barking', 'kun jo mop' means 'dogs and horses' and 'mut tom ko, means 'donkeys are mad'. Which word in that language means 'barking'?
(a) Sud (b) kun (c) jo
(d) tom (e) ko

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