

3. Coding & Decoding

NUMBER/SYMBOL CODING

In these questions, either numerical code values are assigned to a word or alphabetical code letters are assigned to the numbers. The candidate is required to analyse the code as per the questions.

The letters and numbers would be correlated to each other in either of the following ways :

- (1) Direct coding.
- (2) In relation to the position of letters in English alphabet.

Solved Examples

Ex.1 If PAINT is coded as 74128 and EXCEL is coded as 93596, then how would you encode ACCEPT?

Sol. Clearly, in the given code, the alphabets are coded as follows

P	A	I	N	T	E	X	C	L
7	4	1	2	8	9	3	5	6

So, in ACCEPT, A is coded as 4, c as 5, E as 9, P as 7 and T as 8. Hence, the correct code is 455978.

Ex.2 In a certain code, RAIN is written as 8\$%6 and MORE is written as 7#8@. How is REMAIN written in that code?

- (1) #@7\$%6 (2) #&@\$%6 (3) 7@#\$%6 (4) 8@7\$%6

Sol.

Letters	R	A	I	N	M	O	E
	↓	↓	↓	↓	↓	↓	↓
Code	8	\$	%	6	7	#	@

Thus, the code for REMAIN is 8@7\$%6. Hence (4) is the answer.

Ex.3 If PALAM could be given the code number 43, what code number can be given to SANTACRUZ?

- (1) 75 (2) 85 (3) 120 (4) 123

Sol. (4): In the given code, A=1, B=2, C=3,..... Z=26.

So, PALAM = $16+1+12+1+13=43$

Similarly, SANTACRUZ = $19+1+14+20+1+3+18+21+26=123$.

Ex.4 If GO = 32, SHE = 49, then SOME will be equal to -

- (1) 56 (2) 58 (3) 62 (4) 64

Sol. Using the pattern,

B	G	L	Q	V
↓	↓	↓	↓	↓
25	20	15	10	5

The word Go can be

Coded as

G	O
↓	↓
20	12

= 32

and SHE as

S	H	E
↓	↓	↓
8	19	22

= 49

Similarly, SOME can be coded as

S	O	M	E
↓	↓	↓	↓
8	12	14	22

= 56

Hence, (1) is the answer.

LETTER CODING

In these questions, the letter in a word are replaced by certain other letters according to a specific rule to form its code. The candidate is required to detect the coding pattern/rule and answer the questions accordingly.

The letters and codes would be related to each other in either of the following ways :-

- (1) Direct coding.
- (2) Movement of letters relative to their position in English alphabet.
- (3) Reordering of letters.

Solved Examples

Ex.5 If the word EARTH be written as QPMZS in coded form, how can be HEART be written in that code?

- (1) SQPZM (2) SQMPZ (3) SPQZM (4) SQPMZ

Sol. We have,

Letter	E	A	R	T	H
	↓	↓	↓	↓	↓
Code	Q	P	M	Z	S

So the code for HEART becomes SQPMZ

Hence, (4) is the answer.

Ex.6 If in a certain language MYSTIFY is coded as NZTUJGZ, how is NEMESIS coded in that language?

Sol. Clearly, each letter in the word MYSTIFY is moved one step forward to obtain the corresponding letter of the code.

M Y S T I F Y
+1↓
N Z T U J G Z

So, in NEMESIS, N will be coded as O, E as F, M as N and so on. Thus, the code becomes OFNFTJT.

Ex.7 In a certain code, SIKKIM is written as THLJL. How is TRAINING written in that code?

- (1) SQBHOHOH (2) UQBHOHOF (3) UQBJOHHO (4) UQBJOHOH

Sol.

S	I	K	K	I	M
+1↓	-1↓	+1↓	-1↓	+1↓	-1↓
T	H	L	J	J	L

Clearly, the letters in the word SIKKIM are moved alternately one step forward and then one step backward to obtain the letters of the code.

Similarly, 'TRAINING' can be coded as

T	R	A	I	N	I	N	G
+1↓	-1↓	+1↓	-1↓	+1↓	-1↓	+1↓	-1↓
U	Q	B	H	O	H	O	F

Hence (2) is the answer.

SUBSTITUTION

In these questions, some particular words are assigned certain substituted names. Then a question is asked that is to be answered in the substituted code language.

Solved Examples

Ex.8 A 'train' is called 'bus', 'bus' is called 'tractor', tractor is called 'car', 'car' is called 'scooter' 'scooter' is called 'bicycle', 'bicycle' is called 'moped', which is used to plough a 'field'?

- (1) Train (2) Bus (3) Tractor (4) Car

Sol. A tractor is used to plough the field. But a tractor is called car so, a car will be used to plough the field.

Hence (4) is the answer.

Ex.9 If 'sky' is called 'sea', 'sea' is called 'water', 'water' is called 'air', 'air' is called 'cloud' and 'cloud' is called 'river', then what do we drink when thirsty?

(1) Sky

(2) Air

(3) Water

(4) Sea

Sol. When we feel thirsty we drink water, and water is called air. Thus one would drink air.

Hence (2) is the answer.

DECIPHERING MESSAGE CODES

In these type of questions, some messages are given in the coded language and the code for a particular word or message is asked. To analyse such codes, any two messages bearing a common word are picked up. The common code-word will thus represent that word. Proceeding similarly by picking up all the possible combinations of two, the entire message can be decoded and the codes for individual words found.

Solved Examples

Ex.10 In a certain code, 'Kit Mit Fit' means 'I Am Laborious', 'Zit Rit Kit' means 'Laborious Is Dangerous' and 'Sit Fit Rit' means 'Dangerous Extremely Painful' then in that language what is code for 'Is'?

(1) Kit

(2) Zit

(3) Rit

(4) Data inadequate

Sol. In (i) and (ii), common word is 'Laborious' and the common code is 'Kit'.

⇒ 'Kit' means 'Laborious'

Similarly, from (ii) and (iii), we can decipher 'Rit' means 'Dangerous'

So, in (ii), the code left is 'Zit' and the word left is 'Is' Hence, the code for 'Is' is 'Zit'

Hence (2) is the answer.

Ex.11 In a certain code '786' means 'bring apple me', '958' means 'cut green apple' and 645 means 'bring green fruit' then which one of the following is used for 'me'?

(1) 8

(2) 6

(3) 7

(4) Data inadequate

Sol. In (i) and (ii), common word is apple and the common code is 8

⇒ 8 means 'apple'

Similarly, from (i) and (iii), we can decipher '6' means 'bring'

Now, in (i) the word left is 'me' and the code left is 7

⇒ code for 'me' is 7.

Hence (3) is the answer.

Handwritten alphabet code mapping:

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

EXERCISE

1. If in any code language TARGET is coded as UYUCNJ then which word is coded as VICTORY in that language ?
 (1) UKZXJXR (2) UKYXJDR (3) UKYXJWD (4) None
2. If in a certain code MANISH is written as NZMRHS, then how will BANJITA be written in the same code ?
 (1) IZMQRGZ (2) IZMPRGZ (3) IZMQRHZ (4) IZMQRIZ
3. If MENTAL is written LNDFMOSUZBKM, then how would TEST be written in that code ?
 (1) UVFGTIV (2) RSCDQRRS (3) SUDFRQRSM (4) SUDFRTSU
4. If HERCULES is coded as JCTAWJGQ, then what is the code for APHORDITE ?
 (1) CNMJTBKRG (2) CNJMTBKSG (3) CNJMTBKRG (4) CNJMTCKRG
5. If BOX is coded as CDPQYZ what will be the last two letters of word in the same code for HERO ?
 (1) N, M (2) M, N (3) P, Q (4) Q, P
6. If IMPORT is written USPQNJ, then how will CAPITAL be written in this code ?
 (1) MBUJQBD (2) KZSHOZB (3) MUBJBDQ (4) MBQJUBD
7. If $XY = 600$, $ABC = 6$ then, $GO + DO$ will be equal to :
 (1) 150 (2) 180 (3) 165 (4) 155
8. If ANCE is coded as 3, 7, 29, 11 then BOIL will be coded as :
 (1) 5, 31, 21, 25 (2) 5, 31, 19, 25 (3) 5, 29, 19, 25 (4) 5, 29, 19, 17
9. If ADARSHI is coded as 53, SCHOOL is coded as 66 then the word STUDENT will be coded as :
 (1) 90 (2) 97 (3) 89 (4) 96
10. In a certain code KAMAL is written as 29894, VIJAY is written as 35196, then the word VIMAL will be coded as
 (1) 29196 (2) 35894 (3) 35194 (4) 35196
11. If DEAR is coded as 7 and BEARS as 9, what should be the code for WAX ?
 (1) 10 (2) 12 (3) 16 (4) 10
12. If air is called water, water is called green, green is called dust, dust is called yellow and yellow is called cloud, which of the following does fish live in ?
 (1) Air (2) Water (3) Green (4) Dust
13. If rains is called pink, pink is called cloud, cloud is called water, water is called breeze, and breeze is called moon, what do you wash your hands with ?
 (1) Water (2) Rain (3) Breeze (4) Moon
14. In a certain code XZM means he is bright, TCZO means every lawn is green, and OQCN means every wall was green. Which of the following does mean every lawn is bright in that code ?
 (1) ZTOM (2) CXZT (3) XOTZ (4) Cannot be determined
15. In a certain code language, Pat Zoo Sim means Eat Good Mangoes, Pus Sim Tim means Mangoes And Sweets and Tim Zoo Kit means Purchase Good Sweets. Which word in the language means Good ?
 (1) Zoo (2) Pus (3) Sim (4) Tim

