CODING AND DECODING

- Introduction
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INTRODUCTION

Coding: A code or pattern is used to express a word in English language to express it as a different word. The coded word itself does not make any sense unless we know the code, i.e., unless we know the pattern or code that has been followed.

Decoding: It refers to the process of arriving at the equivalent English word from the code word given. Hence, we can look at two broad categories of questions in coding-decoding.

Approach:
Observe alphabets or numbers given in the code keenly.
Find the sequence it follows whether it is ascending or descending.
Detect the rule in which the alphabets/numbers/words follow.
Fill the appropriate letter/number/word in the blank given.

KEY POINTS

- Use the letter that comes one or fixed number of places before it in the alphabet.
- Use a letter as many places from the end of the alphabet as the original letter is from the beginning of the alphabet.
- Each vowel may be replaced by the next vowel that comes in the alphabet and each consonant by another consonant following certain pattern with reference to the consonant under consideration.
- Use one code for all the letters in even places in the given word and a different code for letters and the odd places in the given word to give a new word.

- The same letters in the given word may be used in a cyclic or in some other order to give the coded word.
- Combination of two or more of the above ways of coding.

TYPES OF CODING

Letter coding:

Alphabets in a word are replaced by other alphabets according to a specific rule to know its code. So, the common rule should be detected first.

Example:
'ZYXW' as coded as 'ABCD' then 'STUV' is coded as.....
Solution: Z – A, Y– B, X – C, W – D
V – E, U – F, T – G, S – H
STUV = HGFE (Answer = HGFE)
(Rule= front alphabet= back alphabet.)

Number coding:

In this each alphabets or words are assigned to the numeric values we should observe the given letters and the assigned values and use the same rule to find the value to of given code.

Example:
Apple is coded as 25563, Rung is coded as 7148. Then purple is coded as?
Solution:

A	P	P	L	E		R	U	N	G
2	5	5	6	3		7	1	4	8

Answer: PURPLE – 517563

Substitution:

In this section an object names are substituted with different object names. We should carefully trace the substitution and answer given question.

Example:

'book' is coded as 'pencil', 'pencil' is coded as 'mirror', 'mirror is coded as 'book'. Then what is useful to write on a paper?

Solution: Pencil is useful to write on a paper.
Pencil is coded as mirror.
Answer: Mirror

PRACTICE PROBLEMS (EXPLANATORY ANSWERS AT THE END)

1. In a certain code, if LAND is written as IDKG, then how would GONE be written in that code?
A. DRKH B. ESSB C. DJHL D. XQOE

2. In a certain code, if XJCP is written as ZMGU, then how HFER would be written in that code?
A. ZIIZ B. JIIW C. WASF D. GYTQ

3. In a certain code, if SCIENCE is written as UGOMXOS, then how GEOLOGY would be written in that code?
A. IIUUZPM B. JDBNAAI C. IIUTYSM D. ZMMDUWQ

4. According to certain code, 'body'= 1, 'hand'= 9, 'legs'=7, then 'head' is equal to?
A. 6 B. 8 C. 9 D. 7

5. In a certain code, if SAND is written as UCPF, then how would CUTE be written in that code?
A. EVUF B. EWVG C. DVUF D. EWVF

6. In a certain code, if WATER is written as XZUDS, then how would DRINK be written in that code?
A. EQJML B. ESJOL C. ESJML D. CQHMJ

7. In a certain code, if IUIJT means GREEN, then what does XLSQKA mean?
A. INDIGO B. ORANGE C. VIOLET D. PURPLE

8. In a certain code, if BLACK BOARD is written as XYZPQ, XLZTM and no two letters have the same code, then CAKE might be written as:
A. CZQE B. PZQL C. PZQE D. PZQM

9. If in a certain code "RANGE" is coded as 12345 and "RANDOM" is coded as 123678, then the code for the word "MANGO" would be
A. 82357 B. 84563 C. 82346 D. 82347

10. According to a certain code, 'tree' = 12, 'plant' =9, 'herb'= 6, forest = '11', then 'flora' is?
A. 6 0B. 10 C. 8 D. 7s

SOLUTION WITH EXPLNATORY ANSWER

1. Here the difference is L -3= **I**, A+3= **D**, N-3= **K**, D+3= **G** and the pattern we can see is of the form -3, +3, -3, +3. Therefore, for G-3= **D**, O+3= **R**, N-3= **K**, E+3= **H.** Hence the correct answer is **Option (A).**

2. Here X+2=**Z**, J+3=**M**, C+4=**G**, P+5=**U** and the pattern is in increasing order addition. Therefore, for H+2=**J**, F+3=**I**, E+4=**I**, R+5=**W**. Hence the correct answer is **Option (B).**

3. Here

S	C	I	E	N	C	E
+2	+4	+6	+8	+10	+12	+14
U	H	O	M	X	O	S

Therefore for

G	E	O	L	O	G	Y
+2	+4	+6	+8	+10	+12	+14
-						
I	I	U	T	Y	S	M

Hence the correct answer is **Option (C).**

4. Numerical values are assigned to the alphabets & all the digits are added to obtain a single digit number.
For body, 2+15+4+25=46 => 4+6=10 => 1+0=1

For hand, 8+1+14+4=27 =>2+7=9
For Legs, 12+5+7+19=43=>4+3=7
Hence the correct answer is **Option (C).**

5. S (19) A (1) N (14) D (4) U (21) C (3) P (16 F (6)
From the given example each alphabet is coded two places away from it.
Hence,
C (3) U (21)T (20) E (5) must be coded as
E (5) W (23) V (22) G (7).
Hence, the correct answer is **Option (B)**.

6. W (23) A (1) T (20) E (5) R (18) X (24) Z (26) U (21) D (4) S (19)
As we see from the above relation, each alternate letter (starting from the 1st letter) is increasing by 1 and the other set of alternate letters are decreasing by 1. So, the word DRINK is coded as EQJML.
Hence, the correct answer is **Option A**.

7. I (9) U (21) I(9) J (10) T (20)
G (7) R (18)E (5) E (5) N (14)
Each subsequent letter in the above word is decreasing in an arithmetic progression with the common difference one and the first letter decreasing by two.
X (24)L (12) S (19)Q (17) K (11) A (1)
V (22)I (9) O (15) L (12) E (5) T (20)
Hence, the correct answer is **Option C**.

8. It is easy to see that C is coded as P, A is coded as Z, and K is coded as Q.
The answer should be among options (2), or (3) or (4).
Since there is no reference to the letter 'E' in 'BLACK BOARD' it cannot be among X, Y, Z, P, Q, L, T and M. Hence option (3) is the only possible value.
Hence, the correct answer is **Option C**.

9. R A N G E
1 2 3 4 5

R A N D O M
1 2 3 6 7 8
Therefore MANGO - 82347
Hence, the correct answer is **Option D**.

10. T (20) + r (18) + e (5) + e (5) = 48 = 4 +8 =12.
P (16) + l (12) + a (1) + n (14) + t (20) = 63 = 6 + 3 = 9 and others can be verified similarly.
'flora' can thus be deduced as f (6) + l (12) + o (15) + r (18) + a (1) = 52 = 5 + 2 = 7.
Hence, the correct answer is **Option D**.