Coding and Decoding – Adv

1. If in a coding scheme each letter is replaced by the letter immediately following it in the alphabet and then the resulting word is reversed, what is the code for 'BRAVE'?

    a) FWBSC
    b) CBSWF
    c) FWCBS
    d) SCBWF

    Ans) a

    Explanation:

    First, each letter of 'BRAVE' is shifted by +1: B→C, R→S, A→B, V→W, E→F.

    Then, the resulting word 'CSBWF' is reversed to form 'FWBSC'.

2. A coding scheme replaces a word with the sequence of absolute differences between the alphabetical positions of consecutive letters. What is the code for 'BRICK'?

    a) 15 9 6 8
    b) 14 9 6 8
    c) 16 9 7 8

d) 16 9 6 8

Ans) d

Explanation:

Calculate the absolute differences between consecutive letters in ‘BRICK’: B(2) to R(18) = 16, R(18) to I(9) = 9, I(9) to C(3) = 6, C(3) to K(11) = 8. Thus, the code is ‘16 9 6 8’.

3. In a coding scheme where each letter is replaced by the letter corresponding to (27 minus its alphabetical position), what is the code for 'DOG'?

a) WLT
b) WLU
c) XLT
d) WMT

Ans) a

Explanation:

Replacing each letter with the letter at position (27 - its alphabetical value): D(4) becomes (27-4)=23 (W), O(15) becomes (27-15)=12 (L), G(7) becomes (27-7)=20 (T). Thus, 'DOG' becomes 'WLT'.

4. In a coding scheme where the code for a word is the product of the alphabetical positions of its first and last letters, what is the code for 'PEAR'?

    a) 288
    b) 304
    c) 256
    d) 300

    Ans) a

    Explanation:

    The code is the product of the positions of the first and last letters. For 'PEAR': P=16 and R=18, so 16×18=288.

5. A coding scheme replaces each letter with (27 minus its alphabetical position) and then arranges the resulting letters in alphabetical order. What is the code for 'DOG'?

    a) WTL
    b) LTW

c) TLW

d) LWT

Ans) b

Explanation:

For 'DOG': D=4 becomes 27-4=23 (W); O=15 becomes 27-15=12 (L); G=7 becomes 27-7=20 (T). Arranging these letters in alphabetical order yields 'LTW'.

6. In a coding system where each letter is replaced by the letter corresponding to the sum of its alphabetical position and that of its mirror (with the result taken modulo 26, 0 being 26), what is the code for 'DATA'?

a) AAAA

b) ZZZZ

c) BBBB

d) AAAAA

Ans) a

Explanation:

For each letter in 'DATA', find its mirror (i.e. letter with position 27 minus the letter's position) and add it to the original letter's position.

For D: 4+23=27, A: 1+26=27, T: 20+7=27, A: 1+26=27. Since 27 mod 26 = 1, every letter becomes A, so the code is 'AAAA'.

7. In a cipher that replaces each letter with the letter corresponding to the factorial of its alphabetical position (modulo 26, with 0 treated as 26), what is the code for 'AB'?

   a) AB
   b) BA
   c) AC
   d) BB

Ans) a

Explanation:

For 'AB': A=1 gives 1! = 1 → A; B=2 gives 2! = 2 → B. Thus, the code is 'AB'.