MODULE 4 – CODING AND DECODING

1. If, 1111 = r, 2222 = t, 3333 = e, 4444 = n, 5555 =?
(a) w (b) x (c) y (d) z
Solution:
1 + 1 + 1 + 1 = 4 = Four. The last letter of Four is ‘r’
2 + 2 + 2 + 2 = 8 = Eight. The last letter of Eight is ‘t’
..
..
5 + 5 + 5 + 5 = 20 = Twenty. The last letter of Twenty is ‘y’. Hence, the answer is an option (c).

2. If in a coded language,
45 □ 41
23 □ 13
52 □ 29
71 □ 50
29 □ ?
(a) 23 (b) 26 (c) 53 (d) 85
Solution:
$45 = 4^2 + 5^2 = 41$
$23 = 2^2 + 3^2 = 13$
$52 = 5^2 + 2^2 = 29$
$71 = 7^2 + 1^2 = 50$
Similarly, $29 = 2^2 + 9^2 = 85$

3. GOOD is coded as 164 and BAD is coded as 21. If UGLY is coded as 260 then JUMP will be coded as?
(a) 240 (b) 140 (c) 136 (d) 180
Solution:
G O O D = 164 (**41** * 4 letters)
7 + 15 + 15 + 4 = **41**
Similarly,
B A D = 21 (**7** * 3 letters)
2 + 1 + 4 = **7**
U G L Y = 260 (**65** * 4 letters)
21 + 7 + 12 + 25 = **65**
J U M P = **?** * 4
10 + 21 + 13 + 16 = 60
JUMP = 60 * 4 = 240

4. If MAPLE is coded as VOKZN then how will CAMEL be coded?
(a) OVNZF (b) OUNZX (c) OVNZX (d) XZNVO
Solution:
The position of M is 13 in the alphabet and the reverse 13th alphabet is N
A – 1st Z – 1st reversely.
After this NZKOV is VOKZN
Now for CAMEL it will be OVNZX

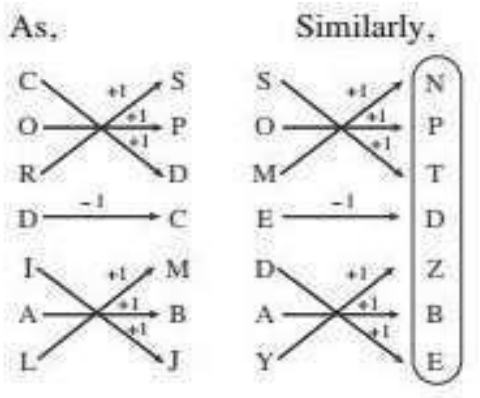
5. If SAVOURY is coded as OVUARSY then how will RADIATE be coded?
(a) AIDARET (b) IDARATE (c) ARIADTE (d) IDAATRE
Solution:
Comparing the positions of letters S, A, V, O, U, R, Y in SAVOURY and OVUARSY, letters at 1, 2, 3,4, 5, 6, 7 positions in SAVOURY have their sequence changed as 4352617 in OVUARSY (4th letter O comes at 1st position, 3rd at second,)
Similarly, just a positioning the letters of RADIATE, i.e. keeping 4th letter (I) at 1st position, 3rd (D) at 2nd positions and so on we get IDAATRE

Alternate Solution:

In the encoded version of SAVOURY, the middle letter 'O' came first followed by the immediate letter on the left, 'V' and then the immediate letter on the right, 'U', followed by a second immediate letter on the left, 'A' and second immediate letter, 'R' followed by the third immediate letter on the left, 'S' and third immediate letter on the right, 'Y'. Applying the same logic on "RADIATE" we get IDAATRE .

6. If BURNER is coded as CASOIS then how will ALIMENT be coded?
(a)BKJLFMU (b) EKOLIMS (c) EMONIOU (d) BRJSFTU
Solution:
Take the next consonant or vowel in alphabetical sequence.
B – C (next consonant in sequence)
U – A (AEIOU, U cycles back to the beginning, or A)
R – S
N – O
E – I (next vowel)
R – S
Therefore,
A – E
L – M
I – O
M – N
E – I
N – O
T – U
EMONIOU

7. In a certain code CORDIAL is written as SPDCMBJ. How is SOMEDAY written in that code?
(a) NPTDEBZ (b) NPTFZBE (c) NPTDZBE (d) None of these
Solution:



Directions for Questions (8 – 12): Study the following information to answer the given questions:
In a certain code **'best way to win'** is written as **'ad mi ja no'**, 'the way to hell' is written as **'ku ja ig ad'**. **'win of the day'** is written as **'be ku zo mi'** and **'to sell of night'** is written as **'be li ya ja'.**

8. What is the code for 'sell'?
(a) be (b) li (c) ya (d) Cannot be determined

9. 'mi' is the code for
(a) to (b) win (c) way (d) of

10. What is the code for 'best'?
(a) ad (b) mi (c) no (d) ja

11. Which of the following may represent 'hell is way'?
(a) ad re ig (b) ig li re (c) re ad be (d) ig py ya

12. Which of the following represents 'of the way'?
(a) rni be no (b) ku be ad (c) ku be ya (d) mi ku be

Solution:

WORD	CODE
night	li/ya
sell	ya/li
day	Zo
of	Be
Hell	Ig
The	Ku
Win	Mi
to	Ja
Way	Ad
Best	No

13. If the word 'EXAMINATION' Is coded as 56149512965, then the word GOVERNMENT' is coded as:
(a) 7645954552 (b) 7654694562 (c) 7645965426 (d) 7654964526

Solution:
We are given that, 'EXAMINATION' 56149512965
We can see that number places according to the alphabetical order of E = 5, X = 6(Since X=24; 2+4= 6), A = 1, M = 4 (1+3), 1 = 9, N= 5 (1+4) , T = 2(2+0)

We can see the pattern as if the position value of the letter > 9, then the sum of the digits is assigned to that letter.
If the position value < 9 , the number place is assigned to that letter.
In GOVERNMENT
G = 7
O = 1 + 5 = 6
V = 2 + 2 = 4
E = 5
R = 1 + 8 = 9
N = 1 + 4 = 5
M = 1+3 = 4
E = 5
N = 1 + 4 = 5
T = 2 + 0 = 2
Therefore, the code for 'GOVERNMENT' 7645954552. Hence, option A is the correct answer.

14. In a certain code language "TERMINAL" is written as “NSFUMBOJ” and “TOWERS” is written as “XPUTSF”. How is “MATE” written in that code?
(a) FUBN (b) UFNB (c) BNFU (d) BNDS
Solution:
While coding “TERMINAL”, for the first four letters, every letter will change to its next letter in alphabetical series and 1st and the fourth letter will exchange their positions and 2nd, 3rd will exchange their positions. Similarly, the next four letters will also follow the same pattern. Hence, the code will be “NSFUMBOJ”

Now for "MATE", we will change the letters according to the above-stated pattern only. M will be N, A will be B and they will exchange their positions. T will be U and E will be F and they will also exchange their positions,
Hence, the answer will be C.

15. In a certain code TEMPORAL is written as OLDSMBSP. How is CONSIDER written in that code?
(a) RMNBSFEJ (b) BNMRSFE (c) RMNBJEFS (d) TOPDQDCH
Solution:
Split TEMPORAL into two halves TEMP and ORAL
Reversing the order of letters, we get PMET and LARO
Subtracting 1 from PMET we get p - 1 = O , M - 1 = L , E - 1 = D T - 1 = S
Adding 1 to LARO we get L + 1 = M , A + 1 = B , R + 1 = S , O + 1 = p
Applying the same concept to CONSIDER
CONS □ SNOC
IDER □REDI

S - 1 = R
N - 1 = M
O - 1 = N
C - 1 = B
I + 1 = 1
D + 1 = E
E + 1 = F

R + 1 = S

RMNBJEFS

In each of the following questions, a word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in the two given matrices. The columns and rows of Matrix I are numbered from 0 to 4 and those of Matrix II from 5 to 9. A letter from these matrices can be represented first by its row and then the column number e.g., in the matrices for questions 1 to 4, M can be represented by 14, 21, etc.; O can be represented by 20, 32, etc. Similarly, you have to identify the correct set for the word given in each question.

Matrix I

	0	1	2	3	4
0	F	O	M	S	R
1	S	R	F	O	M
2	O	M	S	R	F
3	R	F	O	M	S
4	M	S	R	F	O

Matrix II

	5	6	7	8	9
5	A	T	D	I	P
6	I	P	A	T	D
7	T	D	I	P	A
8	P	A	T	D	I
9	D	I	P	A	T

16. MOST
(a) 40, 44, 22, 89
(b) 33, 20, 11, 79
(c) 21, 00, 03, 88
(d) 02, 13, 34, 56

Solution:
Values of different letters on the basis of Matrix I and Matrix II:
From matrix 1,
M can be coded as 02, 14, 21, 33 or 40

O can be coded as 01, 13, 20, 32 or 44
S can be coded as 03, 10, 22, 34 or 41
From matrix II,
T can be coded as 56, 68, 75, 87 or 99.
Clearly, (d) is the only set of correct codes.

17. ROAD
(a) 42, 32, 79, 58 (b) 23, 32, 98, 99
(c) 11, 13, 67, 69 (d) 04, 20, 55, 78
Solution:
Values of different letters on the basis of Matrix I and Matrix II:
From matrix 1,
R can be coded as 04, 11, 23, 30 or 42
O can be coded as 01, 13, 20, 32 or 44.

From matrix II,
A can be coded as 55, 67, 79, 86 or 98
D can be coded as 57, 69, 76, 88 or 95.
Clearly, only (c) contains the correct codes.

18. STOP
(a)10, 56, 44, 97 (b) 41, 68, 01, 77
(c) 22, 75, 32, 86 (d) 33, 99, 42, 59

Solution:

Values of different letters on the basis of Matrix I and Matrix II: From matrix I,
S can be coded as 03, 10, 22, 34 or 41
O can be coded as 01, 13, 20, 32 or 44.
From matrix II,
T can be coded as 56, 68, 75, 87 or 99
P can be coded as 59, 66, 78, 85 or 97.

19. FOAM
(a) 24, 01, 55, 22 (b) 00, 01, 67, 33
(c) 12, 13, 67, 23 (d) 43, 52, 56, 33
Solution:
Values of different letters on the basis of Matrix I and Matrix II:

From matrix 1,
F can be coded as 00, 12, 24, 31 or 43
O can be coded as 01, 13, 20, 32 or 44
M can be coded as 02, 14, 21, 33 or 40.
From matrix II,
A can be coded as 55, 67, 79, 86 or 98.

Option D can be eliminated since, O cannot take the value, 52. Options A and B can be eliminated because M cannot take 22 and 23, the only option that satisfies the condition is option B.

20. In a certain code, WORKABLE is written as VOYZPILD, how will BLUNDERS be written in same code?
(a) CMVOEST (b) TSEOVMC
(c) YOFMWVIH (d) HIVWMFOY
Solution:
WORKABLE DLIPZYOV (opposite letters in the table below) => VOYZPILD (reversing the order)BLUNDERS => YOFMWVIH (opposite letters) => HIVWMFOY (reversing the order)

21. If white is called blue. blue is called red, red is called yellow, yellow is called green, green is called black, black is called violet and violet is called orange, what would be the color of human blood?
(a) Red (b) Green (c) Yellow (d) Violet
Solution:
The color of human blood is red; and red is coded as yellow. Hence, the answer is option (c) – Yellow.
22. If 'sky' is called 'star', 'star' is called 'cloud', 'cloud' is called 'earth', 'earth' is called 'tree', and 'tree' is called 'book', then where do the birds fly?
(a) Cloud (b) Sky (c) Star (d) Data Inadequate
Solution:
Birds fly in the sky. The code for sky is star. Therefore, birds fly in the 'star'.

23. In a certain language, 'sun shines brightly' is written as ‘ba lo sul’, 'houses are brightly lit' as ‘kado ula ari ba’ and 'light comes from sun' as ‘dopi kup lo nro’. What is the code for sun and bright?
(a) ba sul (b) sul lo (c) lo ba (d) ba nro
Solution:
In the first and third statements, the common word is 'sun' and the common codeword is ‘lo’. So, ‘lo’ is the code for 'sun'. In the first and second statements, the common word is 'brightly' and the common code word is ‘ba’. So, ‘ba’ is the code for 'brightly'. Hence, the answer is (c).

24. In a particular language, “TOM KUN SUD” means ‘Boys are playing’; ‘ KUN JO MOP” means ‘Boys and Girls’ and “ MUT TOM KO” means ‘Life is Beautiful’. How is Boys coded as?
(a) TOM (b) KUN (c) MUT (d) JO
Solution:
In the first two sentences, the only common word is Boys and the only common word in the coded form is KUN. Hence, Boys are coded as “KUN”.

25. In a certain code language, 'dom pul ta' means 'bring hot food’, ‘pul tir sop’ means ‘food is good’ and ‘tak da sop’ means ‘good bright boy’. Which of the following does mean ‘hot’ in that language?
(a) dom (b) pul (c) ta (d) Cannot be determined

We can find the code for food' from the first and second statements Now, to find the code for 'hot', we need the code for 'bring' which cannot be determined from the given information.