3. Coding-Decoding

The objective of this topic is to encrypt some messages using codes. People follow various methods to code the words or messages and use symbols, numbers or alphabets for the same purpose.

Rule -1:

A very simple of way coding is where we use symbols for alphabets. In this case we need to replace the alphabet with given codes as identified in given examples.

Ex: BANK ? # @ +

KHEL + # = *

What is the code for LEAN = * = # @

Rule-2: Sometimes alphabets in given word can be coded with their numerical position when counting is done in alphabetical order.

Ex: A B C.....Z

1 2 3.....26

FIFA : 6961

ABCD**E**

1234**5**

F4HI**J** **Tip:**→ E J O T Y

6789**10** 5 10 15 20 25

KLMN**O** (can help us in remembering the other positions)

111213141**5**

PQRS**T**

161718192**0**

UVWX**Z**

212232425

Z

26

Ex: Z = 26 in alphabetical order

Z= 27-26=1 in reverse order

M = B in alphabetical order

M = 27 – 13 in reverse alphabetical order

Rule-3: Few times alphabets are coded as per their numerical position in the reverse alphabetical order.

Alphabets Numerical position in reverse alphabetical order = 27 – position in alphabetical order

Rule 4: Sometimes words can be coded with the sum or product of the numerical positions of the alphabets in the given word.

NEFT = 45 → 14 + 5 + 6 + 20

RTGS = 64 → 18 + 20 + 7 + 19

ATM = 260 = 1 x 20 x 13

REMEMBER = 8no. Of alphabets

BANKING = 6 no. Of alphabets -1

Rule 5: Alphabets in the given word can be replaced with the alphabet which comes numerically in the same position in the reverse alphabetical order.

GUNS ---- TFMH

Numerical position alphabetically

G – 7 T is 7^{th} in reverse order

U-21 F is 21^{st} in reverse order

N – 14 M is 14^{th} in reverse order

S - 19 H is 19^{th} in reverse order

Rule 6 : Alphabets in the given word can be made into groups, then jumbled and replaced by new set of alphabets based on the logic considered..

FI G H T E R – U F S G G K J

Sol : F I G H T E R - >T E R HF I G

+1 -1 +1 +2 +3

T A L E N T – U O F M B U

T A L E NT – each alphabet is replaced with next alphabet after shifting.

1→6 2→5 3→4

Question which to be given for 1 mark previously in now given for 5 marks.

Ex: Wenxia is miss world – 3 4 5 8

Wenxia is beautiful – 5 4 7

who is she – 6 9 4

she is beautiful – 7 4 9

In these case we have to identify common words and common numbers among sentences and accordingly give the codes

Ex: 'is' is common in all 4statements and '4' is common in all the codes

so the code for 'is' is 4.

In the 1st and 2nd 'Wenxia' and 'is' are common and '5' and '4' are common in the codes but as already 4 is given for is so 5 is for Wenxia. In 3rd and 4th 'she' is common and 9 is common so 'she' is coded as 9. (as 'is' is already identified)

In 3rd codes for both 'is' and 'she' are known so 'who' is coded as 6.

Similarly codes for beautiful from 2nd and 4th can be identified as 7.

But codes for 'miss' and 'world' can't be identified as miss can be either 3 or 8 and world can be either 3 or 8 (as we could eliminate only the codes for 'Wenxia' and 'is'.

Trivial Questions:

Blue is red, red is green, green is pink, pink is white. Then what is the colour of blood?

As a colour of blood is red and red is coded as green so colour of blood is green.

Alphabets

From this topic one or two models always appear in BANK exams

Model 1. How many pairs of alphabets are they in the word 'SECURITY' which is having as many alphabets in between them as in English alphabets

NOTE: This question is concerned with number of alphabets in between any pair of alphabets? For example E and I has FGH i.e. 3 alphabets in between them in 'Alphabets'. Similarly in the given word between E and I they have CUR that is 3 alphabets so they are a pair.

So are the R and T - 1

U and Y – 3

So total = 3.

As it will be difficult to check for each pair it is good if we number them as per their alphabetical position and find the pairs

S	E	C	U	R	I	T	Y
19	5	3	21	18	9	20	25

Points to note:

CEAT: C and A is also consider as a pair.(That is in reverse order.)

Other 'Alphabets' models or self-explanatory.

Ex: how many meaningful words can be formed using all the letter, of 'MNAE'

MEAN , NAME, AMEN, MANE

Names are not of be considered

Plural is accepted

Exercise-A

Directions (Q.1-6): Study the following information to answer the given questions: In a certain code, 'always create new ideas' is written as'ba ri sha gi' , 'ideas and new thoughts' is written as 'fa gi ma ri', 'create thought sand insights' is written as 'ma jo ba fa', and 'new and better solutions' is written as 'ki ri to fa'.

1. What is the code for 'ideas'?
   1) sha 2) ba 3) gi 4) ma 5) Cannot be determined
2. What does 'fa' stand for?
   1) thoughts 2) insights 3) new 4) and 5) solution
3. 'fa lo ba' could be a code for which of the following?
   1) thoughts and action 2) create and innovate 3) ideas and thoughts
   4) create new solutions 5) always better ideas
4. What is the code for 'new'?
   1) ki 2) ri 3) to 4) fa 5) ba
5. Which of the following may represent 'insights always better'?
   1) jo ki to 2) ki to ri 3) sha jo ri 4) to sha jo 5) sha to ba
6. What is the code for 'thoughts'?
   1) ma 2) fa 3) ba 4) jo 5) Either jo or fa

Directions (Q. 7-12): Study the following information to answer the given questions: In a certain code **'for profit order now'** is written as **'ho ja ye ga', 'right now for him'** is written as **'ga ve ja se', place order for profit'** is written as **'ga bi ho ye'** and **'only in right order'** is written as **'ve du ye zo'**.

7. What is the code for 'him'?
   1) ga 2) ve 3) ja 4) se 5) Cannot be determined
8. What does 'bi' stand for?
   1) profit 2) order 3) place 4) for 5) now
9. 'fo ve du' could be a code for which of the following?
   1) in right spirits 2) only in profit 3) order only him 4) place in right
   5) order only now
10. What is the code for 'profit'?
    1) ye 2) ga 3) bi 4) ja 5) ho

11. Which of the following may represent 'only for now'?
    1) ja bi zo 2) du zo ga 3) zo ga ja 4) zo ga ye 5) du bi ja
12. What is the code for 'order'?
    1) ye 2) ga 3) bi 4) ja 5) ho

Directions(13-18): Study the following information to answer the given questions. In a certain code, **'her idea has merit'** is written as 'fo la bu na', '**merit list has been displayed**' is written as 'jo ke la si na', '**her name displayed there'** is written as 'ya si bu zo' and **'name in merit list**' is written as 'na ya go ke'.

13. What does 'ke' stand for?
    1) been 2) has 3) merit 4) name 5) list
14. What is the code for 'idea'?
    1) fo 2) la 3) bu 4) na 5) Either bu or na
15. Which of the following represents 'name has been displayed'?
    1) ya la ke si 2) jo si ya la 3) si jo ke na 4) bu ya ke la 5) ya si jo zo
16. What does 'zo' stand for?
    1) there 2) displayed 3) name 4) her 5) Cannot be determined
17. Which of the following may represent 'her name is there'?
    1) zo ya go wo 2) bu ya zo go 3) zo ya bu ke 4) ya zo wo bu 5) wo go zo ya
18. What is the code for 'in'?
    1) na 2) ya 3) go 4) ke 5) Cannot be determined

Directions (Q. 19-22): Study the following information to answer the given questions. In a certain code**, 'ze lo ka gi'** is a code for **'must save some money ' 'fe ka so ni'** is a code for **'he made good money', 'ni lo da so'** is a code for **'he must be good'** and **'we so ze da'** is a code for **'be good save grace'**.

19. Which of the following is the code for 'must'?
    1) so 2) da 3) lo 4) ni 5) cannot be determined
20. What does the code 'ze' stand for?
    1) some 2) must 3) be 4) grace 5) save
21. Which of the following is the code for 'good'?
    1) so 2) we 3) ze 4) lo 5) fe

22. 'grace of money' may be coded as

1) ka da fe 2) we ka so 3) ja da we 4) ka we yo 5) ja ka ze

KEY:

(1-6): 'always create new ideas' → 'ba ri sha gi' ...(1)

'ideas and new thoughts' → 'fa gi ma ri'...(2)

'create thoughts and insights' → 'ma job fa' ...(3)

'new and better solutions' → 'ki ri to fa' ...(4)

Using (1) and (4),

new → ri

Using 1, 2 and 4

ideas →gi

and → fa

thoughts → ma

Using 1 and 3,

create → ba

always → sha

insights → jo

better solutions → ki to

1.3 2.4 3.2 4.2 5.4 6.1

(8-12): for profit order now → ho ja ye ga...(1)

right now for him → ga ve ja se ...(2)

place order for profit → ga bi ho ye ....(3)

only in right order → ve du ye zo ...(4)

Using 3 and 4, order → ye

Using 2 and 3, for → ga

Using the just found codes and equations.

profit → ho

place → bi

right → ve

him → se

only in → du zo

now → ja

7.4 8.3 9.1 10.5 11.3 12.1

(13-18): Using the given four statements, the codes are

her → bubeen → jo

idea →fodisplayed →si

has → laname → ya

merit → nathere → zo

list → kein → go

13.5 14.1 15.2 16.1

17.4: Code for 'is' is not known but out of the given five options only 'ya zo wo bu' may be the coding.

18.3: go

(19-22): ze lo ka gi = must save some money ...(i)

fe ka so ni = he made good money ....(ii)

ni lo da so = he must be good ....(iii)

we so zed a = be good save grace...(iv)

From (i) and (iii), lo = must ....(v)

From (i) and (iv), ze = save...(vi)

From (ii), (iii) and (iv), so = good ....(vii)

From (i) and (ii), ka = money ...(viii)

From (i), (v), (vi) and (viii), gi = some ....(ix)

From (ii), (iii) and (vii), ni = he ...(x)

From (ii), (vii), and (x), fe = made ....(xi)

From (iii), (v), (vii) and (x), da = be ....(xii)

From (iv), (vi), (vii) and (xii), we = grace ....(xiii)

19.3 20.5 21.1 22.4

Exercise-B

1. By following certain logic HOUSEWIFE is written as ERRVBZFIB. How is HOUSEHOLD written in that logic?

   1. ERRVBEROA 2. ERRVBEOLA 3. ERRVBKOLA 4. ERRVBKLOA 5.None of these

2. By following certain logic MTUXTRVN is written as NUVXTQUM. How is ASUMNJKL written in that logic?

   1. BTVMNIJK 2. BTVMNKLM 3. BTVNMIJK 4. ZRTMNIJK 5. None of these

3. In a certain code language the word LATEST is written as IDQHPW. How will the word PAPERS be written in that language?
   1. SXSBUP 2. MDSBUP 3. MDMHOV 4. MDMHUV 5. None of these
4. In a certain code language the word ATMOSPHERE is written as BSLPROGFQF. How will the word NEIGHBOURS be written in that language?
   1. MFJFGAPVQR 2. MFJFGAPVQR 3. ODJFIAPSTR 4. ODJEIAPTSR 5. None of these
5. In a certain code language the word HOARDING is written as RAKQPJID. How will the word LIMERICK be written in that language?
   1. EMOKENRI 2. MEOKENIR 3. EOMKENIR 4. EMOKENIR 5. None of these
6. In a certain code language, the word AMASSED is written as JUHYXIG. How will the word KNOBBLY be written in that language?
   1. TVUHGPB 2. SUTGFOA 3. TTUVPQC 4. TVUHHOB 5. None of these

7. In a certain code language IMPLICIT is written as LRWUTPXK. How will INTROVERT be written in the same code?
   1. LSAZAITMI 2. LSAAZITIM 3. LSASIZTIM 4. LSAIZATIM 5. None of these
8. In a certain code language the word SMOULDER is written as UHGOXRPV. How will the word NEWSCAST be written in that language?
   1. QHZVFDWV 2. WVFDVZHQ 3. WVDFVZHQ 4. WVDFZVH 5. None of these
9. In a certain code language the word HOARDING is written as 23191321 and LIMERICK is written as 21182714. How will the word SUITABLE be written in that language?
   1. 21290317 2. 20290317 3. 40290317 4. 71309204 5. None of these
10. In a certain code language 'UMBERALLA' is written as '1111321851212'; and as 'VULNERABLE' is written 112111121451812125'. How is 'YTTERBIUM' written in that code?
    1. 111110110518291111 2. 115110110518291113
    3. 113110110518291113 4. 1151101105182911113 5. None of these
11. In a code language '3960' means 'you will help me'; '1369' means 'I will help you'; '12469' means 'why I will help them'; and '748' means 'kill them doctor'. On the basis of the above information the code for which of the following can't be obtained with certainly?

1. me 2. Why 3. you 4. them 5. doctor

12. In a certain code language 'CAT' is written as '3120'; and 'DOG' is written as '4157'. Then which of the following is certainly the decoded form of '25144'?

1. BEND 2. BEADD 3. YADD or YND 4. Can't be determined 5. None of these

13. If DELHI is coded as 73541 and CALCUTTA as 82589662, how can CALICUT be coded?

1. 5279431 2. 5978213 3. 8251896 4. 8543691 5. None of these

14. In a certain code, RIPPLE is written as 613382 and LIFE is written as 8192. How is PILLER written in that code?

1. 318826 2. 318286 3. 618826 4. 338816 5. None of these

15. If Z=52 and ACT=48, then BAT will be equal to

1. 39 2. 41 3. 44 4. 46 5. None of these

16. If REASON is coded as 5 and BELIEVED as 7, what is the code number for GOVERNMENT?

1. 6 2. 8 3. 9 4. 10 5. None of these

17. If GO=32, SHE=49, then SOME will be equal to

1. 56 2. 58 3. 62 4. 64 5. None of these

18. If AT=20, BAT=40, the CAT will be equal to

1. 30 2. 50 3. 60 4. 70 5. None of these

19. In a certain code language **You require more concentration**is written **as tig seeg loog roog; Stress require for arithmetic**is written as **miya lota loog kota; Non verbal is more easy** is written **as seeg yoog beeg laa;** and **Stress more on non-verbal**is written as **seeg mota yoog miya.** Then the code for which of the following can't be determined?

1. more 2. Require 3. on 4. is 5. stress

20. In a certain code **pot jit jack** means **tall green tree, kot jit pot** means **small green tree** and **jack son kot** means **small and tall.** Then which words in that language mean **tall** and **green** respectively?

1. jack and kot 2. Jack and jit 3. jack and pot 4. Can't say 5. None of these

21. In a certain code **chor mousere to bhai** means **best award is Nobel, dar to kahe** means **Raju is worry, saiyan kotwal kahe** means **I am worry, dar to chor kaa** means **Raju is best actor** and **chor mousere** means **best award.** Then which of the following words can't be decoded with certainity?

1. dar 2. Bhai 3. kaa 4. kotwal 5. kahe

22. In a certain code **holi gholi moli** means **read and write; gholi jholi alensoli** means **write a letter;** and **moli alensoli toil** means **read the letter.** How will you code **read the letter and write?**

1.Can't say 2.Moli toil alensoli jholigholi 3.moli toil alensoli jholi gholi
4.jholi gholi alensoli toil moli 5.None of these

23. In a certain code language **pit jo ha** means **very good boy** and **jo na pa** means **she is good.** Then which of the following means **very** in that code language?

1. pit 2. Jo 3. ha 4. either pit or ha 5. None of these

24. If **blue** is called **green**, **green** is called **black**, **black** is called **white, white** is called **red** and **red** is called **brown**, then which is the colour of the ordinary post-box?

1. Green 2. Red 3. White 4. Brown 5. None of these

25. If **ice** is called **water, water** is called **rain, rain** is called **wind, wind** is called **air** and **air** is called **sky,** then you will find amphibians on land and in

1. wind 2. Water 3. sky 4. air 5. Rain

26. In a certain code language 'auto goes for strike' is written as '$1!*', 'strike gives right' is written as '?!£', and 'auto drivers are right' is written as '-*?#'. Then what is the code 'goes' in that language?

1. $ 2. 1 3. * 4. Data inadequate 5. None of these

27. In a certain code 'FEAR' is written as '+x÷*' and 'READ' is written as '*x÷$'. How is 'FADE' written in that code?

1. +÷$x 2. x÷+$ 3. $÷+* 4. ÷$+x 5. None of these

28. In a certain code language GAME is written as '$÷*%' and BEAD is written as '#%÷x', How will the word MADE be written in that code language?

1. $÷x% 2. *÷$% 3. *÷x% 4. #÷x% 5. None of these

29. In a certain code language 'pen pencil' is written as '$£', 'eraser sharpener' is written as '@#', and 'pencil eraser' is written as '$@', then what is the code for 'pen'?

1. £ 2. @ 3. $ 4. # 5. None of these

30. In a certain code language BEAM is written as 5%*K and COME is written as $7K%. How is BOMB written in that code?

1. 5%K5 2. 57K5 3. $7K$ 4. 5$%5 5. None of these

Coding and Decoding ANSWERS

1)4

2)1; First three letters move +1 step as in English alphabet and the last three letters move -1 step as in English alphabet. The rest remains as it is.

3)3; Odd-number-positioned letters are shifted three places leftward and even-number-positioned letters are shifted three places rightward as in English alphabet.

4)2; Vowels shift one place forward while the consonants shift one place backward as in English alphabet.

5)4

6)5; The letters are coded as 9,8,7,…,3 letters forward respectively. Thus K+9, N+8, O+7, B+6, B+5, L+4 and Y+3 i.e. TVVHGPB.

7)2; The letters are coded as +3, +5, +7… forward as in English alphabet.

8)3; All letters are coded as three letters forward as in English alphabet but they are arranged in reverse order.

9)3;

10)4; Each letter of the word is coded as the number equal to the position of the letter in English alphabet. But those letters which are ahead of S are coded as follows: U->21st letter, code used 111; v->22nd letter, coded as 112, ie digits at ten's place is coded as a sequence of 1s equal in number to the face value of digits at ten's place. Hence, whenever 2 comes at ten's place then 2 is replaced by 11.

11)5; Here 3690→ you will help me……(i)

1369→ I will help you…….(ii)

12469→ Why I will help you…….(iii)

748→ kill them doctor……(iv)

A. From (i) and (ii), '0' means 'me'. And '1' means 'I'.

B. From (ii) and (iii), '3' means 'you' and '24' means 'why them'.

C. From (iii) and (iv), '4' means 'them' therefore '2' means 'why' [from B].

Hence, either '7' or '8' stands for 'doctor'.

12)4; Decoding with certainty is not possible.

13)3; The alphabets are coded as follows:

D	E	L	H	I	C	A	U	T
7	3	5	4	1	8	2	9	6

So, in CALICUT, C is coded as 8, A as 2, L as 5, I as 1, U as 9 and T as 6. Thus, the code for CALICUT is 8251896.

14)1; The alphabets are coded as shown;

R I P L E F

6 1 3 8 2 9

So, in PILLER, P: is coded as 3, I as 1, L as 8, E as 2 and R as 6. Thus the code for PILLER is 318826.

15)4; In the given code, A=2, B=4, C=6….. Z=52

So, ACT=2+6+40=48 and BAT=4+2+40=46

16)3; Code for the given word=(Numbers of letters in the word)-1. So, code for GOVERNMENT=10-1=9

17)1; In the given code, Z=1, Y=2, X=3……..C=24, B=25, C=26. So, GO=20+12=32 and SHE=8+19+22=49. Similarly SOME=8+12+14+22=56.

18)3; Taking A=1, B=2, …….T=20,……Z=26, we have:

AT=A*T=1*20=20: BAT=B*A*T=2*1*20=40

Similarly CAT=C*A*T=3*1*20=60

19)4; Here codes for more, require, on and stress are seeg, loog, mota and miya respectively. Whereas code for *is* either *beeg* or *laa.*

20)4

21)4; Only two such codes are present in the given information, meaning of which can't be found out with certainity. They are *saiyan* and *kotwal.*

22)2

23)4; pit jo ha --> very good boy……..(i)

Jo na pa → She is good …..(ii)

Obvoiusly jo means good. And code for very is either pit or ha.

24)4; The colour of post-box is red, and red is called brown. Hence its colour is brown.

25)5; Amphibians are creatures that live on land as well as in water.

26)4; auto goes for strike= $1!* ……(i)

Strike gives right= ?!£ …….(ii)

Auto drivers are right= -*?# …….(iii)

From (i) and (ii), we get *strike*= !

From (ii) and (iii), we get *right*= ?

From (i) and (iii), we get auto= *

Hence, *goes*= $ or 1

27)1; It is clear that F→ +, A→ ÷, D→ $ and E→ x

Therefore FADE→ +÷$x

28)3; G ($), A(÷), M(*), E(%)

B(#), E(%), A(÷), D(x)

MADE= *÷x%

29)1; Pen pencil= $£ …..(i); eraser sharpener= @# ….(ii); pencil eraser= $@ ……(iii)

From (i) and (iii), the code for 'pencil' is $. Hence, from (i), the code for 'pen' is £.

30)2; Here B→ 5, E→ %, A→*, M→K, C→ $, O→7

Therefore, BOMB→ 57K5