

Coding-Decoding ✓



প্রাথমিক ধারণা

What is This?



- Coding–Decoding is a method of encrypting a message before transmitting it to someone, which no third person can understand without knowing the key.

DOC
↓ ↓ ↓ (+2)
FQI

- **Coding** is a process in which a word, a number, or a series of combination of words and numbers is expressed in a particular code or pattern based on various rules. You have to answer the questions based on these set of rules.

CAT
↓ ↓ ↓ (+2)
ECV

- **Decoding** is the process of (interpreting) deciphering the coded pattern and reverting it to its original form from the given codes. Hence, you are required to understand the logic behind the coding pattern and then apply this logic to find answers.

Facts About Letters:

1) LETTERS IN ALPHABET ORDER

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

$H \rightarrow 8 =$
 $27 - 8 = 19$ ✓

Facts About Letters:

2) LETTERS IN REVERSE ALPHABET ORDER

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

Opposite
 $16^{\text{th}} \rightarrow 27 - 16$
 $211 \rightarrow 5 + 2 = \text{K}$

Opposite letter

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

F → opposite letter → 6
 $(27-6) = 21 \rightarrow U$



Find the opposite letter of →

p → 16 → $27 - 16 = 11$ → k

19 → $27 - 19 = 8$ → h

s → 18 → $27 - 18 = 9$ → i

r → 24 → $27 - 24 = 3$ → c

x →



How to remember?

- Starting and Ending letters are,

- A → 1st
- Z → 26th

- Middle letters are,

- ✓ M → 13th
- ✓ N → 14th

1 26 13 14 26 1

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Opposite 26 14 13 1

How to remember?

- Code is 'EJOTY':

✓ E → 5

✓ J → 10


✓ O → 15

✓ T → 20

✓ Y → 25

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
 ✓ ABCD **E** FGHI **J** KLMN **O** PQRS **T** UVWX **Y** Z

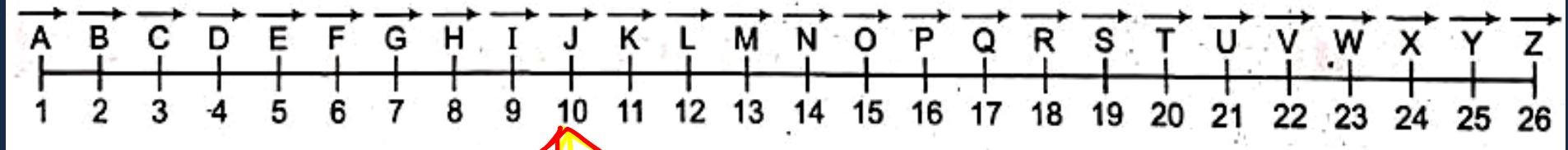
Handwritten notes: 22nd → Y-2 = 20, 27th → Q (0+2)



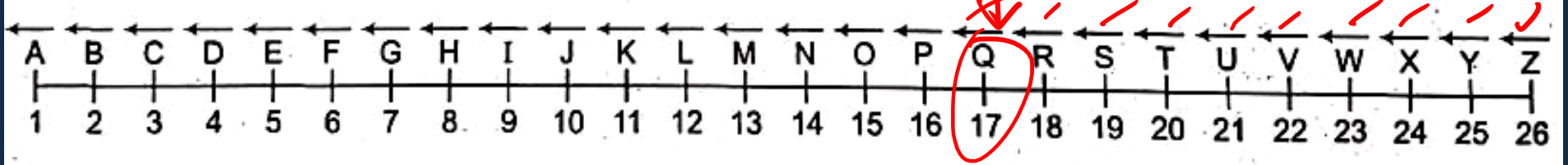
ARRANGMENT of LETTERS

1. Linear arrangement (straight line arrangement)

• Left to Right:



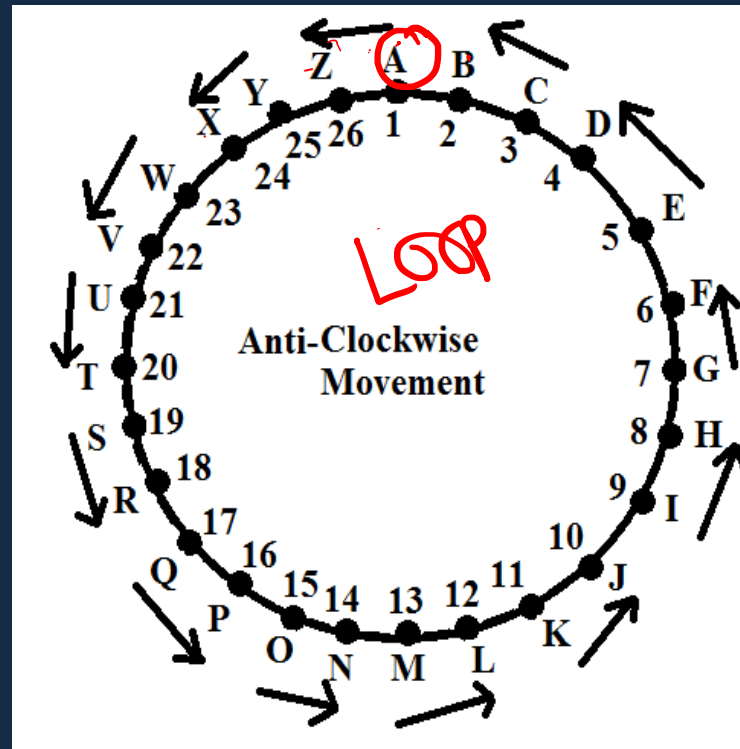
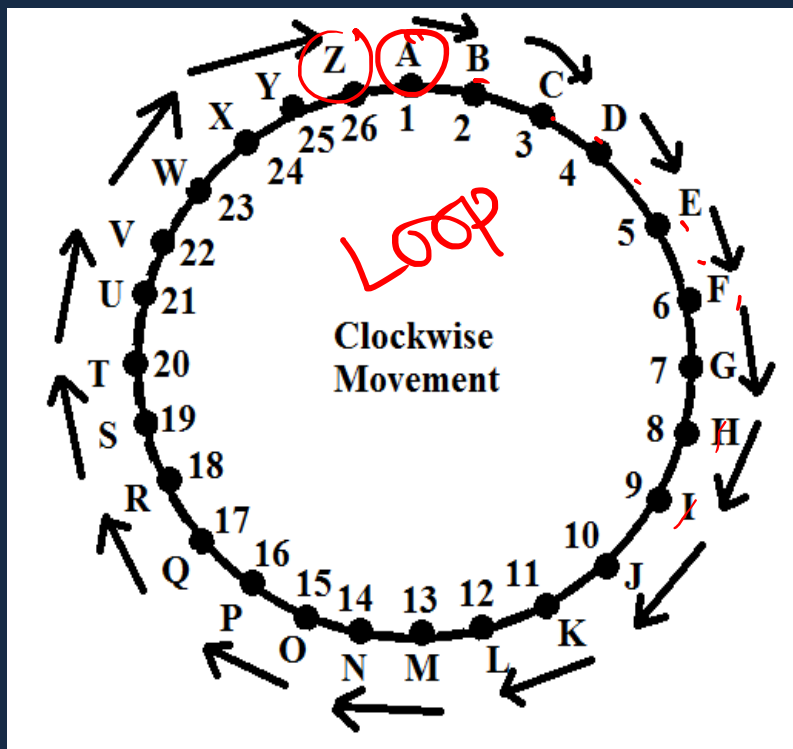
• Right to Left:

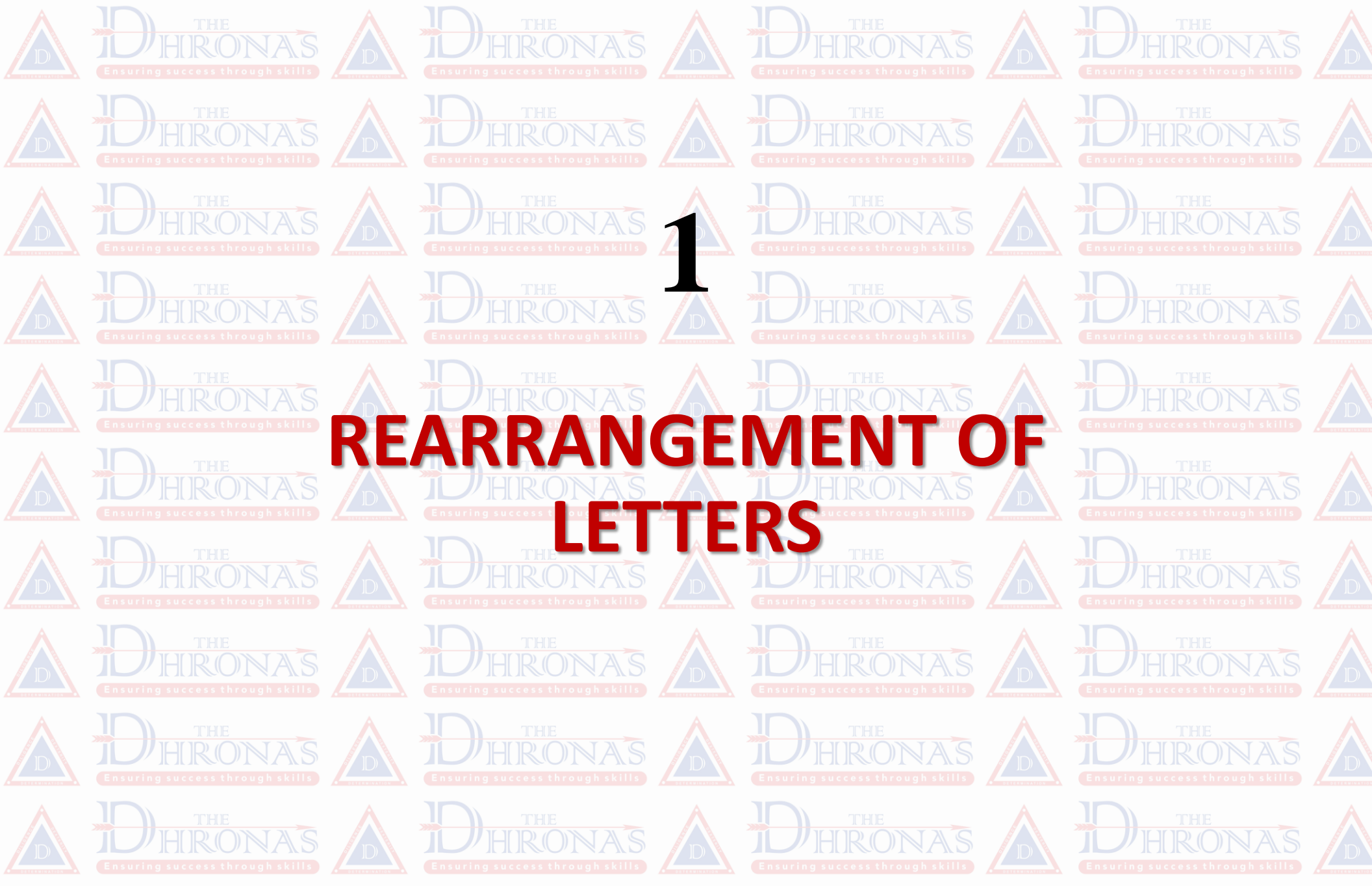


- শেষের দিক থেকে বর্ণের স্থান = $27 -$ শুরুর দিক থেকে বর্ণের স্থান
- শেষের দিক থেকে E-এর স্থান = $27 -$ শুরুর দিক থেকে E-এর স্থান = $27 - 5 = 22$

Opposite of 5 is 22. $27 - 5 = 22$ → 22

2. Circular arrangement



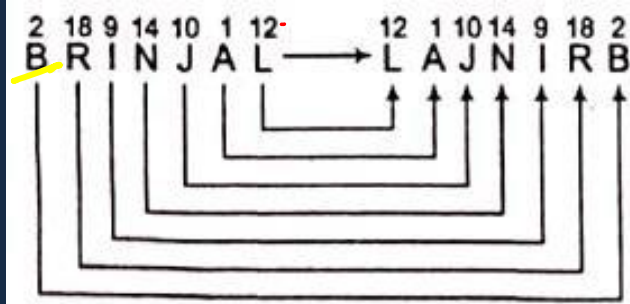


1

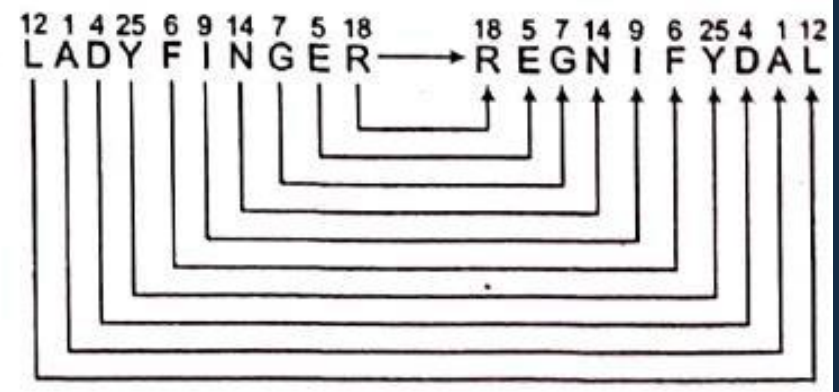
REARRANGEMENT OF LETTERS

A. When all the letters of word are written in reverse order

- Ex:** যদি একটি কোডেড ভাষায় 'BRINJAL' লেখা হয় 'LAINIRB', তাহলে 'LADYFINGER' লেখা হবে-



Similarly,



~~BRINJAL~~ LAINIRB

~~LADYFINGER~~ REGNIFYDAL

B. When letters of the word are divided into two parts and then both the parts are written in reverse order

- **A B C D E F** এর মান 1 2 3 4 5 6 হলে, এর কোডিং নিম্নরূপ উপায়ে করা যেতে পারে

A	B	C	F	E	D	1	2	3	6	5	4
C	B	A	D	E	F	3	2	1	4	5	6
C	B	A	F	E	D	3	2	1	6	5	4

(A B C) (D E F)

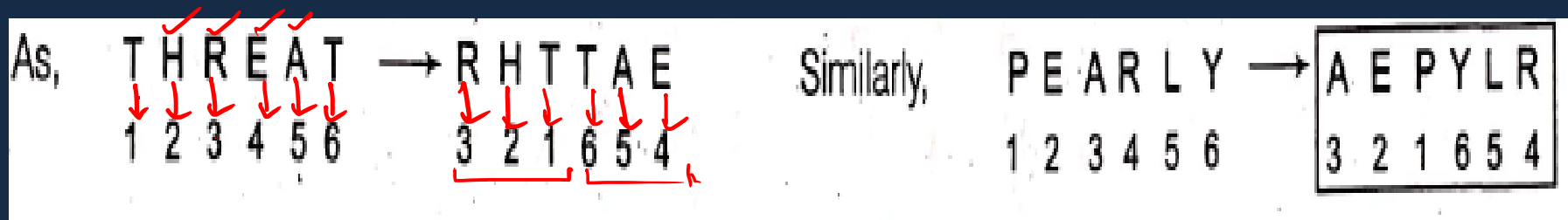
(D	E	F)	(A	B	C)	4	5	6	1	2	3
D	E	F	C	B	A	4	5	6	3	2	1
F	E	D	A	B	C	6	5	4	1	2	3

C A U G H T → G H T CAU
 ① U A C G H T ④ G H T C A U
 ② C A U T H G ⑤ T H G C A U
 ③ U A C T H G ⑥ G H T U A C
 ⑦ T H G U A C

CAUGHT → T H G C A U
 THE, ADVICE → ?
 ICE ADV
 EC I ADV

B. When letters of the word are divided into two parts and then both the parts are written in reverse order

- Ex: যদি একটি নির্দিষ্ট কোড ল্যাসুয়েজে **'THREAT'** কে **'RHTTAE'** লেখা হয়, তাহলে সেই কোডে **'PEARLY'** কীভাবে লেখা হবে?

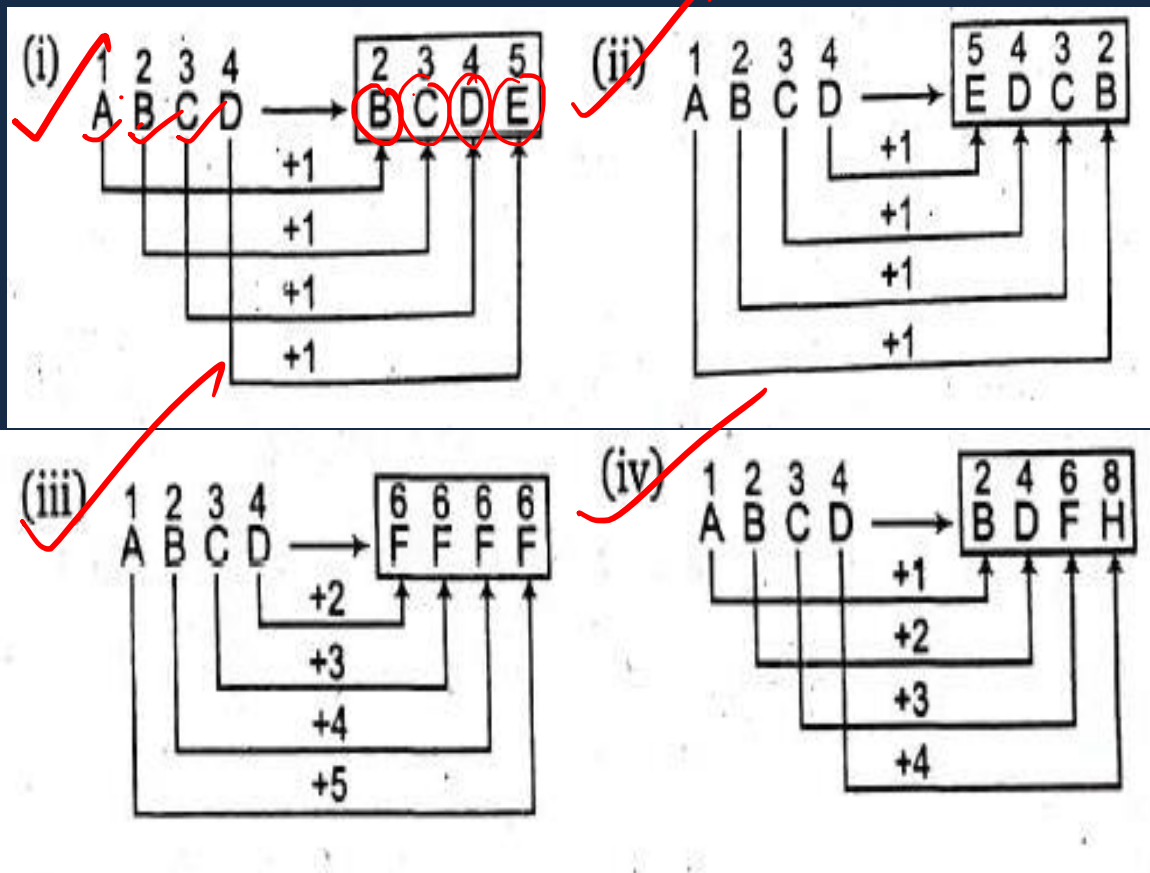


PEARLY
RAEPYLR

2

CODING BASED ON REPLACEMENT OF LETTERS

A. Forward sequence coding



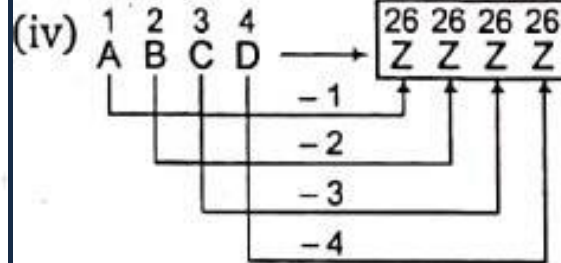
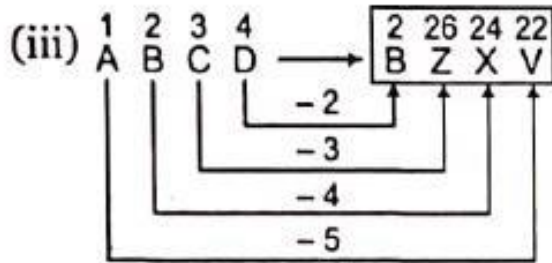
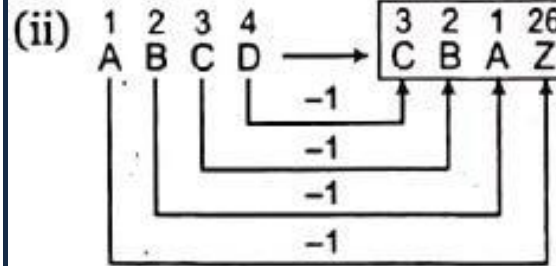
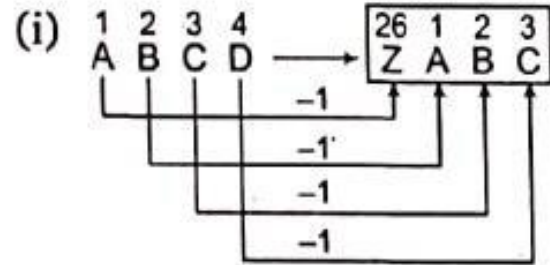
① FORT
+1 ↓ +1 ↓ +1 ↓ +1 ↓
GPSU

② FORT
+1 ↓
USQU

③ FORT
+2 ↓ +3 ↓ +4 ↓ +5 ↓
VUSK

④ FORT
+1 ↓ +2 ↓ +3 ↓ +4 ↓
RQUX

B. Backward sequence coding



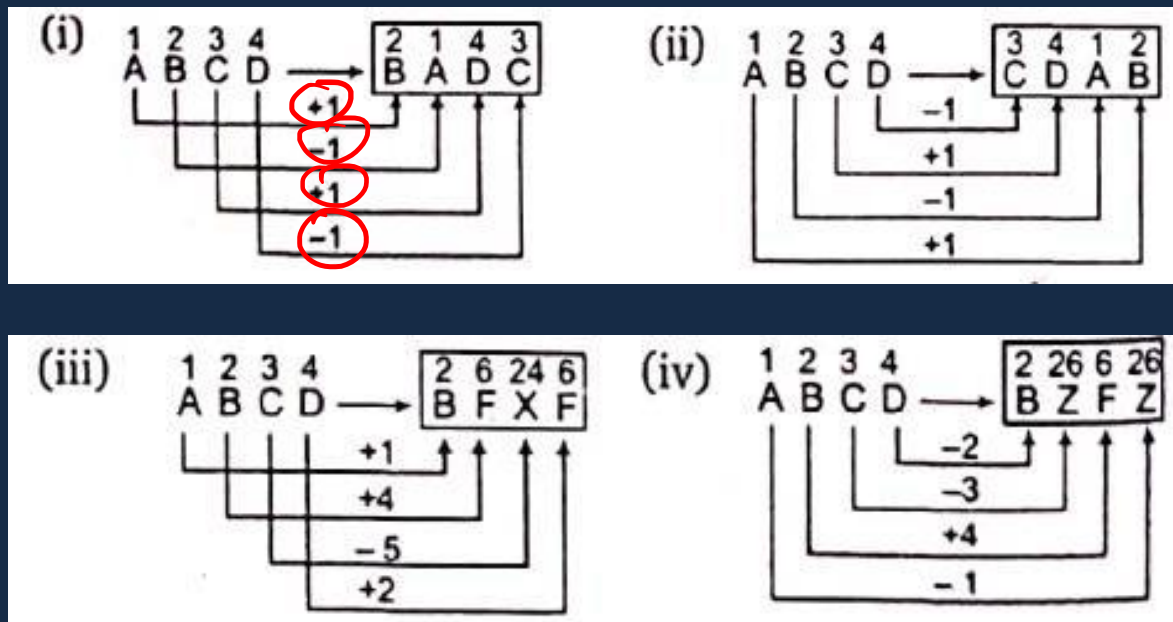
① CUTE
② ↓ ↓ ↓ ↓
B T S D

② C U T E
③ ↓ ↓ ↓ ↓
D S T B

③

④

C. Mixed sequence coding (forward and backward)



IF, DOCTOR
BQAVMT
Then, COMPUTER
???

DOCTOR
-2/-2/-2/-2/-2
B Q A V M T
COMPUTER
-2/-2/-2/-2/-2
A Q K R R V C I

D. Direct letter coding

- এই ধরনের কোডিংয়ে, কিছু অক্ষর গ্রুপ/শব্দকে কিছু কোড বরাদ্দ করা হয় যা কোনও নিয়ম অনুসরণ করে না।

- Ex: If 'SILVER' is coded as 'ZXYBDQ' and 'KAMAL' is coded as 'LNCNY', then what will be the code for 'VIKAS'?

- Solution:

- S - Z, I - X, L - Y, V - B, E - D, R - Q, K - L, A - N, M - C, A - N, L - Y.

∴ Code for the 'VIKAS' is 'BXLNZ'.

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SYMBOL CODING BASED ON SIMILARITY

Problem...

- Ex: In a certain code 'GONE' is written as 5%2# and 'MEDAL' is written as 4#3\$@, then how will 'GOLD' be written in that code ?

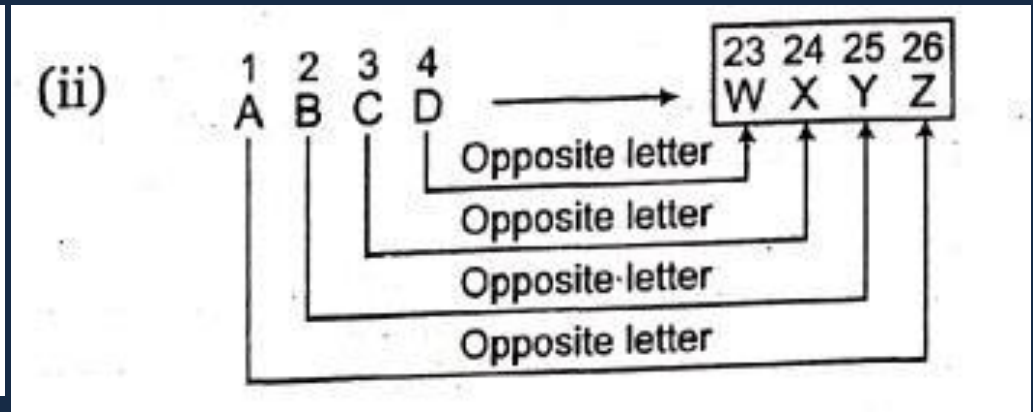
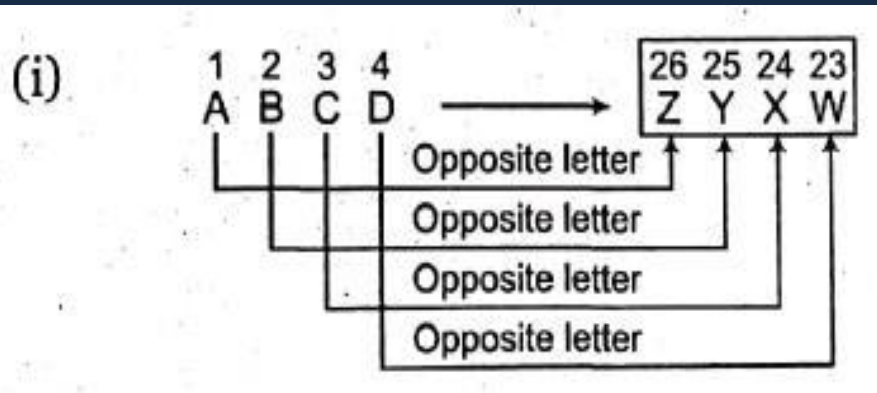
• G O N E and M E D A L
 • 5 % 2 # 4 # 3 \$ @

- Similarly, GOLD is written as 5% @3.

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OPPOSITE LETTER CODING

Under this pattern, each letter of a word is coded with its opposite letter.



(i)

MOLD

13 15 14

24 25 23

LOW

27-13=14

27-15=12

27-12=15

27-4=23

(ii)

MOLD

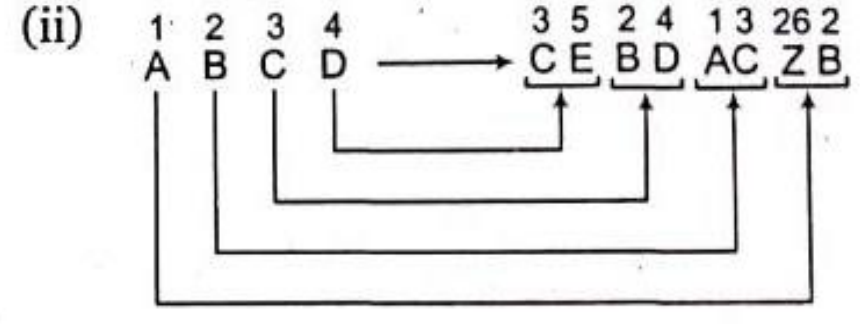
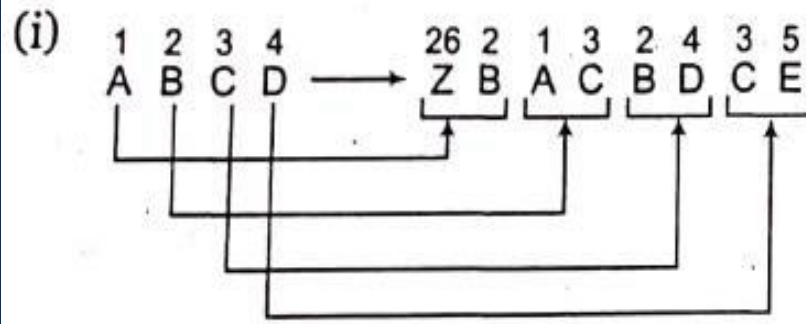
NLOW

WOLN

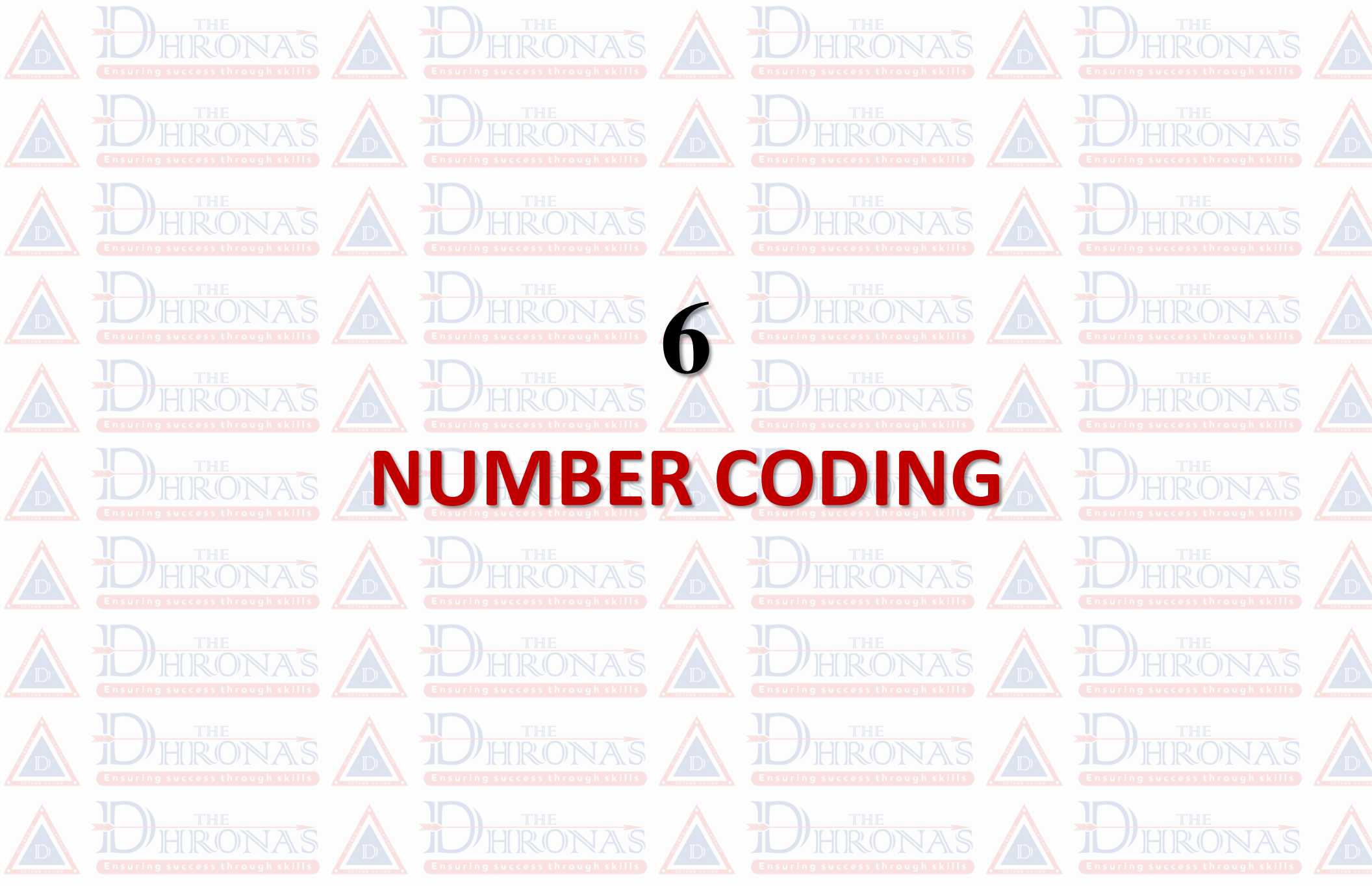
5

CODING OF LETTERS BY THEIR LEFT AND RIGHT LETTERS

Under this pattern each letter of a group/ word is coded by its left and right letters of English alphabet.



ENGLISH
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
DFMOKHJRTGI



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NUMBER CODING

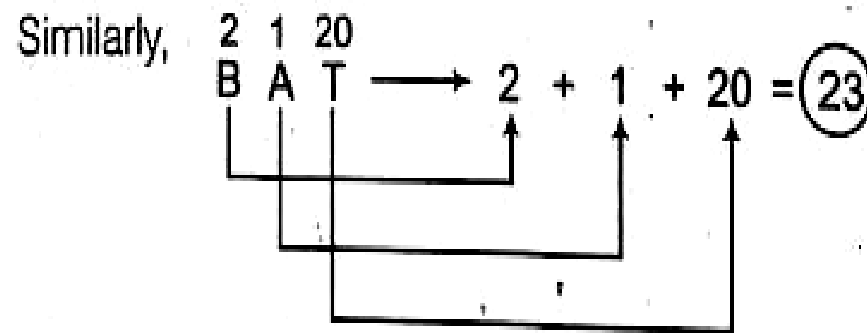
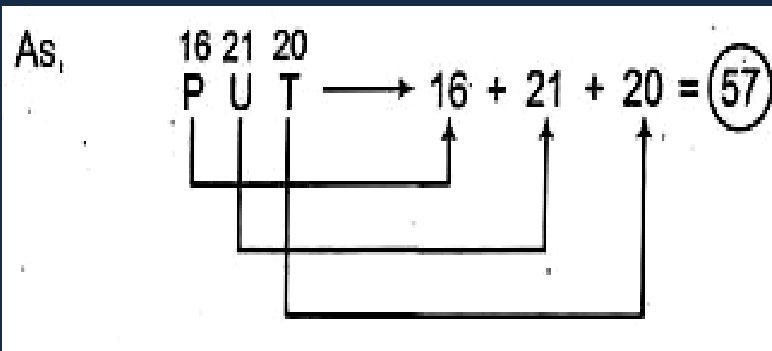
In number coding numerical code is assigned to the word or the alphabetical letters.

- Ex: If in a certain code of language 'PUT' is written as '57', then how will 'BAT' be written in that language?

- Solution:

PUT $\rightarrow 16 + 21 + 20$
2 (57)

BAT $\rightarrow 2 + 1 + 20$
2 (23)



DOCTOR $\rightarrow ???$

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CODING BY SUBSTITUTION/ WORD REPLACEMENT

Problem...

- Ex: যদি 'নীল' মানে 'সবুজ', 'সবুজ' মানে 'সাদা', 'সাদা' মানে 'হলুদ', 'হলুদ' মানে 'কালো', 'কালো' মানে 'লাল' এবং 'লাল' মানে 'বাদামি' হয়, তাহলে দুধের রং কী?

• Solution:

- দুধের রঙ সাদা।
- কিন্তু এখানে 'সাদা' মানে 'হলুদ', তাই দুধের রঙ 'হলুদ'!

সাদা

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FICTITIOUS LANGUAGE CODING

Problem...

- If a certain code language

'pick and choose' = 'ko ho po',

'pick up and come' = 'to no ko po',

'pick' = ?

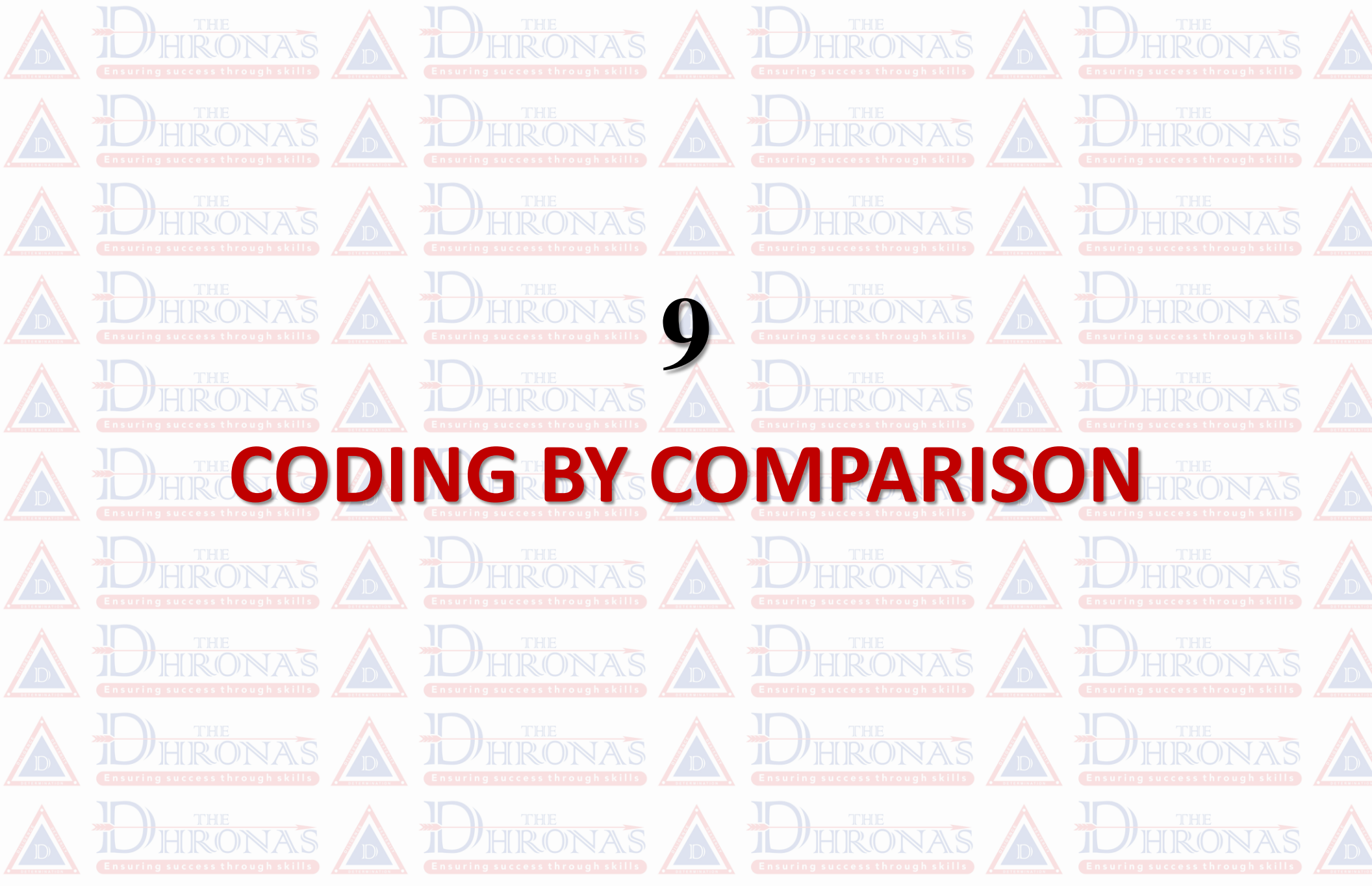
Pick / AWA 2 ko / po

- Solution:
- pick and choose - ko ho po
- Pick up and come - to no ko po

∴ pick and – ko po

So, 'Pick' means 'ko' or 'po'

2 =



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CODING BY COMPARISON

Problem...

- Ex: প্রথম লাইনে কিছু অক্ষর দেওয়া হয়েছে এবং দ্বিতীয় লাইনে তাদের নম্বর দেওয়া হয়েছে। সংখ্যাগুলি অক্ষরগুলির জন্য কোডা বর্ণমালার প্রদত্ত সেটের জন্য সঠিক নম্বর কোডটি চয়ন করুন।
- C W E A Z X J Y K L
- 3 9 5 7 4 8 1 0 2 6
- JWXCLZ=?
- Solution:
- J W X C L Z
- 1 9 8 3 6 4

10

CONDITIONAL CODING

letter	M	J	R	A	D	B	W	
Digits/symbol code	8	4	@	9	C	1	2	
letter	Z	P	E	I	H	G	U	K
Digits/symbol code	\$	3	#	5	6	%	7	*

- Conditions:

- ~~i) if the first letter is a consonant and the last letter is a vowel, both are to be coded as the code for the vowel.~~
- ii) if the first letter is a vowel and the last letter is a consonant, both are to be coded as the code for the consonant.

- Find the code for 'IBHJRZ'

↓ ↓ ↓ ↓ ↓ ↓
\$ 1 6 4 @ \$

Thank You