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**VIRTUAL COACHING CLASSES  
ORGANISED BY BOS (ACADEMIC), ICAI**

**FOUNDATION LEVEL  
PAPER 3: BUSINESS MATHEMATICS, LOGICAL  
REASONING & STATISTICS**

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## NUMBER SERIES, CODING DECODING AND ODD MAN OUT SERIES

- **Series Classified into Three Types, Namely**
- Number Series
- Alphabet Series
- Letter Series
- **NUMBER SERIES**
- **Case 1: Missing terms of the series**
- In this type the questions we have to identify the missing term of the series real according to a specific pattern of the series rule to form its code. The students are required to detect the missing number of the series and answer the questions accordingly.

**Example 1:** Find the missing term of the series 2, 7, 16, \_\_, 46, 67, 92

**Explanation:** Here the terms of the series are +5, +9, +13, +17, +21, +25...

Thus,  $2 + 5 = 7$ ; and  $7 + 9 = 16$  ...

So missing term =  $16 + 13 = 29$

**Example 2:** Find the wrong terms of the series 9, 29, 65, 126, 217, 344

**Explanation:**  $2^3 + 1, 3^3 + 1, 4^3 + 1, \dots$  Here 29 is wrong term of series

- **Example 3:** Find the missing term of the series 1, 9, 25, 49, 81, 121, .....
- **Solution:** The given terms of the series are consists square of consecutive odd number  $1^2$ ,  $3^2$ ,  $5^2$ ,  $7^2$ , ....
- So missing value =  $13^2 = 169$

# ALPHABET SERIES

- Alphabet series consists of letters of the alphabet placed in a specific pattern.
- For example, the series are in the following order of the numbers.

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
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
26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

**Example 4:** Find the next term of the series BKS, DJT, FIU, HHV?

**Explanation:** In each term, the first letter is moved two steps forward, the second letter one step backward and third letter one step forward to obtain the corresponding letter of the next term.

So the missing term is JGW

## ■ **LETTER SERIES:**

- This type of question usually consist of a series of small letters which follow a certain pattern.
- However some letters are missing from the series.
- These missing letters are then given in a proper sequence as one of the alternatives.

# CODING AND DECODING- cryptography/ secret message

- Before transmitting, the data is encoded and at receiver side encode data is decoded in order to obtain original data by determining common key in encoded data.
- The Coding and Decoding is classified into, they are type.
- **Type 1: Letter Coding Type 2: Number Coding**
- **Type 1: Letter Coding**
- In this type the real alphabets in a word are replaced by certain other alphabets according to a specific rule to form its code.
- The candidate is required to detect the common rule and answer the questions accordingly.



- **Case1:** To form the code for another word
- **Example 6:** If in a certain language MYSTIFY is coded as NZTUJGZ, how is MENESIS coded in that language?
- **Explanation:** Clearly, each letter in the word MYSTIFY is moved one step forward to obtain the corresponding letter of the code.
- M Y S T I F Y
- +1<sup>—</sup>
- N Z T U J G Z
- So, in MENESIS, N will be coded as O, E as F, M as N and so on.
- Thus, the code becomes NFOFTJT.

- **Example 7:** If TAP is coded as SZO, then how is FRIEND coded?
- **Explanation:** Clearly each letter in the word TAP is moved one step backward to obtain the corresponding letter of the code.
- S Z O
- -1
- T A P
- Thus, in FRIEND, F will be coded as E, R as Q , I as G, E as D, N as M and D as C.
- So, the code becomes EQGDMC.

- **Example 8:** In a certain code, MENTION is written as LNEITNO. How is PRESENT written in that code?
- **Explanation:** Clearly, to obtain the code, the 1<sup>st</sup> letter of the word MENTION is moved one step backward and the remaining letters are reversed in order, taking two at a time.
- So, in PRESENT, P will be coded as O, and the sequence of the remaining letter in the code would be ERESTN.
- Thus the code becomes OERESTN.
- Hence, The answer is OERESTN.

# Type 2: Number Coding

- In these questions, either numerical code values are assigned to a word or alphabetical code letters are assigned to the numbers. The candidate is required to analyse the code as per the directions.
- **Case 1: When a numerical code values are assigned to words.**
- **Example 10:** If in a certain language A is coded as 1, B is coded as 2, and so on, how is AICCI is coded in that code?
- So in AICCI, A is coded as 1, I as 9, and C as 3. Thus, AICCI is coded as 19339.

# Number coding

- **Example 11:** If PAINT is coded as 74128 and EXCEL is coded as 93596, then how would you encode ANCIENT ?
- So, in ANCIENT, A is coded as 4, N is coded as 2, C as 5, I is coded as 3, E as 9, and T as 8. Hence, the correct code is 4251928

P	A	I	N	T	E	X	C	L
7	4	1	2	8	9	3	5	6

- **Case 2: Number to letter coding.**
- **Example 12:** In a certain code, 2 is coded as P, 3 as N, 9 as Q, 5 as R, 4 as A and 6 as B. How is 423599 coded in that code?
- **Explanation:** Clearly as given, 4 as A, 2 as P, 3 as N and 5 is coded as R, 9 as Q. So, 423599 is coded as APNRQQ.

# ODD MAN OUT

- Classification means ‘to assort the items’ of a given group on the basis of a certain common quality they possess and then spot the stranger or ‘odd one out’.
- These questions are based on words, letters and numerals. In these types of problems, we consider the defining quality of particular things. In these questions, four or five elements are given, out of which one does not belong to the group.
- You are required to find the ‘odd one’.

■ **Example 13:** January, May, July, November

■ (a) January (b) May (c) July (d) November

**Explanation:** All the months above are 31 days ,  
whereas , November 30 days

■ **Answer:** (d)

■ **Example 14:** 10, 14, 16, 18, 23, 24 and 26

■ (a) 26 (b) 17 (c) 23 (d) 9

■ **Explanation:** Each of the above series are even  
number, except 23.

■ **Answer:** (c)



- **Example 17:** 16, 25, 36, 62, 144, 196, 225
- (a) 36 (b) 62 (c) 196 (d) 144
- **Explanation:**
- Each of the number except 62, is a perfect square.
- **Answer:** (b)

# Recap

- Number series
- Alphabet series
- Letter series
- Letter Coding
- Number coding
- Decoding
- Odd man out
- Problems & solution – Ex 9A



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**THANK YOU**