VOLUME-02 Part-A

General Aptitude

Contents

1. Mathematical and Numerical Ability

Numerical ability pertains to the understanding and application of numerical relations and dealing with numbers as symbols. A certain level of cognitive capacity is essential fro dealing with numbers as symbols. This cognitive helps us to function at a definite level of mental abstraction. This is the reason why the psychologists call numerical ability as one aspect of 'Abstract Intelligence'. The questions for checking a person's level of numerical ability mostly deal with numerical comprehension, numerical retention, numerical reasoning, and numerical analysis.

Question in this section will require a higher level of abstraction from the candidate is as compare to the earlier two sections. One has to understand the logic behind the relation between the given numbers. One has to understand the logic behind the relation between numbers to get the correct solution.

NUMBER SERIES

In these tests, the series consist of numbers (digits). Number series are generally formed by:

A. Addition of figures given in the row.
B. Subtraction of figures from one another.
C. Division of figures by one another.
D. Multiplication of figures
E. Logical transposition of figures.
F. Increase/decrease of numbers in a specific pattern.

A careful examination of the example given here will familiarize you with the type of questions that you are likely to face.

Example: Each of the following series follows a regular pattern. Write down the number which will complete the sequence and replace the question mark(?)

1. 5 10 15 25 40 ?
2. 3 12 48 192 ?
3. 48 24 72 36 108 ?
4. 1 3 7 15 31 ?
5. 285 253 221 189 ?
6. 1 2 8 9 15 16 ?
7. 9 4 8 5 7 6 ?
8. 905 576 329 247 ?

Answers with explanations

1. 65. Each term is the addition of the two previous numbers.
2. 278. Multiply each term by 4 to get the next number.
3. 54. Divide by 2 and multiply by 3 alternately.
4. 63. Numbers increase in steps of 2, 4, 8 and 16.
5. 157. Numbers decrease by 32 each time.
6. 22. The interval is alternately 1 and 6.
7. 6 and 7. Two alternating series, one increasing and the other decreasing.
8. 82. The interval between each pair of numbers becomes the succeeding term in the series.

I. Completing the given series by finding the missing terms

Example

Directions: Find the missing term in each of the following series:

1. 1, 2, 15, ?, 45, 66, 91

a) 25 b) 26 c) 27 d) 28

Solutions: Clearly, the given sequence follows the pattern: +5, +9, +13, +17, +21, +25,……

Thus, 1+5=6, 6+9=15,….

So, missing term = 15+ 13=28.

Hence, the answer is (d)

2. 2, 5, 9, 19, 37, ?

a) 73 b) 75 c) 76 d) 78

Solutions: Clearly, we have : $2 \times 2 + 1 = 5$, $5 \times 2 + 1 = 9$, $9 \times 2 + 1 = 19$, $19 \times 2 + 1 = 37$,….

So, missing term = $37 \times 2 + 1 = 75$

Hence, the answer is (b)

3. 4, 8, 28, 80, 244, ?

a) 278 (b) 428 (c) 628 (d) 728

Solutions: The terms of the given series are: 3^1+1, 3^2-1, 3^3+1, 3^4-1, 3^5+1,….

So, missing term = 36 – 1 = 729 – 1 = 728

Hence, the answer is (d).

4. 10000, 11000, 9900, 10890, 9801,?

a) 10241 (b) 10423 (c) 10781 (d) 10929

Solution: Clearly, alternately we add and subtract 10% of a term to obtain the next term of the series.

Thus, 10000 + (10% of 10000) = 11000; 11000 - (10% of 11000) = 9900, 9900 + (10% of 9900) = 10890, 10890-(10% of 10890) = 9801

So, missing term = 9801 + (10% of 9801) = 9801 + 980 = 10781.

Hence, the answer is (c).

5. 0, 6, 24, 60, 120, 210, ?

a) 240 b) 290 c) 336 d) 504

Solution: Clearly, the given series is: $1^3 - 1, 2^3 - 2, 3^3 - 3, 4^3 - 4, 5^3 - 5, 6^3 - 6$

Therefore, missing term = 73 - 7 = 343 - 7 =336.

Hence, the answer is (c).

6. 1, 4, 27, 16, ?, 36, 343

a) 25 b) 87 c) 120 d) 125

Solution: The given series consists of cubes of odd numbers and squares of even numbers, i.e., $1^3, 2^3, 3^3, 4^2, \ldots$

So, missing term = $5^3 = 125$

Hence, the answer is (d).

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