

## GATE Aptitude Practice Questions Progression

- Q.No. 1** The difference between the sum of the first  $2n$  natural numbers and the sum of the first  $n$  odd natural numbers is \_\_\_\_\_.
- (A)  $n^2 - n$   
 (B)  $n^2 + n$   
 (C)  $2n^2 - n$   
 (D)  $2n^2 + n$
- Q.No. 2** The ratio of 'the sum of the odd positive integers from 1 to 100' to 'the sum of the even positive integers from 150 to 200' is \_\_\_\_\_.
- (A) 45 : 95  
 (B) 1 : 2  
 (C) 50 : 91  
 (D) 1 : 1
- Q.No. 3** The sum of the first  $n$  terms in the sequence 8, 88, 888, 8888, ... is \_\_\_\_\_.
- (A)  $\frac{81}{80}(10^n - 1) + \frac{9}{8}n$   
 (B)  $\frac{81}{80}(10^n - 1) - \frac{9}{8}n$   
 (C)  $\frac{80}{81}(10^n - 1) + \frac{8}{9}n$   
 (D)  $\frac{80}{81}(10^n - 1) - \frac{8}{9}n$
- Q.No. 4** Consider a sequence of numbers  $a_1, a_2, a_3, \dots, a_n$  where  $a_n = \frac{1}{n} - \frac{1}{n+2}$ , for each integer  $n > 0$ . What is the sum of the first 50 terms?
- (A)  $\left(1 + \frac{1}{2}\right) - \frac{1}{50}$   
 (B)  $\left(1 + \frac{1}{2}\right) + \frac{1}{50}$   
 (C)  $\left(1 + \frac{1}{2}\right) - \left(\frac{1}{51} + \frac{1}{52}\right)$   
 (D)  $1 - \left(\frac{1}{51} + \frac{1}{52}\right)$

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Q.No. 5  $\underbrace{a + a + a + \dots + a}_{n \text{ times}} = a^2b$  and  $\underbrace{b + b + b + \dots + b}_{m \text{ times}} = ab^2$ , where  $a, b, n$  and  $m$  are natural numbers. What is the value of

$$\left( \underbrace{m + m + m + \dots + m}_{n \text{ times}} \right) \left( \underbrace{n + n + n + \dots + n}_{m \text{ times}} \right)?$$

- (A)  $2a^2b^2$       (B)  $a^4b^4$       (C)  $ab(a + b)$       (D)  $a^2 + b^2$

Q.No. 6 What is the value of  $1 + \frac{1}{4} + \frac{1}{16} + \frac{1}{64} + \frac{1}{256} + \dots$ ?

- (A) 2      (B)  $\frac{7}{4}$       (C)  $\frac{3}{2}$       (D)  $\frac{4}{3}$

Q.No. 7 The value of  $\sqrt{12 + \sqrt{12 + \sqrt{12 + \dots}}}$  is

- (A) 3.464      (B) 3.932      (C) 4.000      (D) 4.444

Q.No. 8 The sum of eight consecutive odd numbers is 656. The average of four consecutive even numbers is 87. What is the sum of the smallest odd number and second largest even number?

Q.No. 9 In a sequence of 12 consecutive odd numbers, the sum of the first 5 numbers is 425. What is the sum of the last 5 numbers in the sequence?

Q.No. 10 The arithmetic mean of five different natural numbers is 12. The largest possible value among the numbers is

- (A) 12      (B) 40      (C) 50      (D) 60

**Answer Key**

Q. No.	Ans.
1	B
2	C
3	D
4	C
5	B
6	D
7	C
8	163
9	495
10	C



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Contact- 9740501604