

Class Test

F.M. - 15

Class - X

Topic: Arithmetic Progression

Time: 30 minutes

Date: 07/08/26

[A] Choose the correct option:

(1 × 3 = 3)

1. The sum of first n terms of an AP is given by $S_n = 3n^2 + 5n$. The common difference of the AP is-
(A) 3 (B) 5 (C) 6 (D) 8
2. If the last term of an AP is 119 and the 8th term from the end is 91, then the common difference of the AP is -
(A) 2 (B) 4 (C) 3 (D) -3
3. Find the value of the series $\left[\frac{1}{2 \times 7} + \frac{1}{7 \times 12} + \frac{1}{12 \times 17} + \frac{1}{17 \times 22} + \dots + \frac{1}{97 \times 102}\right]$
(A) $\frac{14}{102}$ (B) $\frac{5}{51}$ (C) $\frac{23}{97}$ (D) 145

[B] Assertion - Reason Based Questions:

(1 × 2 = 2)

4. **Assertion (A):** The sum of first 20 natural numbers is 210.
Reason (R): Natural numbers form an AP with common difference 2.
5. **Assertion (A):** If p th term of an AP is q and the q th term is p ($p \neq q$), then the n th term is $p + q - n$.
Reason (R): The n th term of an AP is given by $a_n = a + (n - 1)d$.

[C] Very Short Answer type Question:

[2]

6. The sum of first three terms of an AP is 27 and their product is 405. Find the 5th term of the AP.

[D] Short Answer type Question:

[3]

7. 150 workers were engaged to finish a piece of work in a certain number of days. Four workers dropped on second day, four more worker dropped on third day and so on. It takes 8 more days to finish the work now. Find the number of days in which the work was completed.

[E] Long Answer type Question:

[5]

8. If $S_1, S_2, S_3, \dots, S_m$ are the sums of n terms of m AP's whose first terms are 1, 2, 3, ..., m and common differences are 1, 3, 5, ..., $(2m - 1)$ respectively. Show that

$$S_1 + S_2 + S_3 + \dots + S_m = \frac{mn}{2}(mn + 1)$$