

Topic : Sequence & Series

Type of Questions

M.M., Min.

Comprehension (no negative marking) Q.1 to Q.3

(3 marks, 3 min.)

[9, 9]

Single choice Objective (no negative marking) Q.4,5

(3 marks, 3 min.)

[6, 6]

Subjective Questions (no negative marking) Q.6,7

(4 marks, 5 min.)

[8, 10]

COMPREHENSION (Q.No. 1 to 3)

Given a special sequence a, b, c, d such that first three numbers are in A.P. while the last three are in G.P. If

the first number is 18 and common ratio of G.P. is $\frac{1}{2}$, then answer the following questions.

- The value of $c + d$ is given by
 (A) 9 (B) 10 (C) 11 (D) 12
- If three A.M.s are inserted between b and c , then the third A.M. is
 (A) $\frac{11}{2}$ (B) $\frac{13}{2}$ (C) $\frac{15}{2}$ (D) $\frac{17}{2}$
- If four G.M.s are inserted between k_1c and k_2d , where $k_2 = 64k_1$, then the common ratio of G.P. so formed is
 (A) 2 (B) $\frac{3}{2}$ (C) $\frac{2}{3}$ (D) $\frac{1}{3}$
- If the sum of first three terms of a G.P. is to the sum of first six terms as 125 : 152, then the common ratio of the G.P. is
 (A) $\frac{3}{5}$ (B) $\frac{5}{3}$ (C) $\frac{2}{5}$ (D) $\frac{5}{2}$
- 61st term of the H.P. $\frac{4}{3}, \frac{3}{2}, \frac{12}{7}, \dots$ is
 (A) $-\frac{17}{4}$ (B) $\frac{34}{3}$ (C) $\frac{3}{34}$ (D) $-\frac{4}{17}$
- All terms of the arithmetic progression are natural numbers. The sum of its nine consecutive terms, beginning with the first, is larger than 200 and smaller than 220. Find the progression, if its second term is equal to 12.
- Let x_1 & x_2 be the roots of the equation $x^2 - 3x + A = 0$ and let x_3 & x_4 be the roots of the equation $x^2 - 12x + B = 0$. It is known that the numbers x_1, x_2, x_3, x_4 (in the same order) form an increasing G.P. Find A and B .

Answers Key

1. (A) 2. (C) 3. (A) 4. (A)
5. (D) 6. 8, 12, 16, 7. $A = 2, B = 32$