

Progressions

5

1m	2m	3m	4m	5m	6m	Total
1(K)	1(U)	1(K)	1(U)	1(U)	–	15

1 MARK QUESTIONS

- Find the 13th term of the A.P. $\frac{1}{3}, \frac{2}{3}, 1, \dots$ (Knowledge)
- Find the 30th term of the A.P. $-2, -5, -8, \dots$
- Find the value of K, if $\frac{3}{5}, K, \frac{13}{5}$ are in A.P.
- Find the 7th element of the G.P. $\sqrt{2}, 2, 2\sqrt{2}, \dots$
- Find the 9th element of G.P. $0.3, 0.6, 1.2, \dots$
- If $\frac{5}{2}, K, 10$ are in G.P. then find the value of K.
- Find the sum to infinity of the G.P. $1, \frac{1}{2}, \frac{1}{4}, \dots$
- Find the sum to infinity of the G.P. $3, -1, \frac{1}{3}, \frac{-1}{9}, \dots$
- Write the formula for general term and sum to 'n' terms of an A.P.
- Write the formula for general term and sum to 'n' terms of an G.P.
- Find the 10th element (term) of H.P. $\frac{1}{2}, \frac{1}{4}, \frac{1}{6}$.
- Find 'x', if $\frac{1}{3}, x, \frac{3}{2}$ are in H.P.
- Find the 7th element of a H.P. $\frac{1}{\sqrt{2}}, \frac{1}{2\sqrt{2}}, \frac{1}{3\sqrt{2}}, \dots$

2 MARKS QUESTIONS

- Find the 7th term of an A.P. whose first term is 6 and 12th term is 72. (Understanding)

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2. Find the sum of the following A.P. $\frac{3}{2}, 2, \frac{5}{2}, \dots$ to 18 terms.
3. Find the sum of the A.P. 1.1, 1.3, 1.5, to 20 terms.
4. If the 3rd term of an A.P is 11 and 10th term is 32. Find the A.P.
5. If the 3rd term of an A.P is -11 and 14th term is -44. Find the 20th term.
6. How many terms of an A.P. 2, 3, 4, 5, 6 amount to 230?
7. Which term of an A.P. $\frac{1}{2}, 1, \frac{3}{2}, \dots$ is 5?
8. Is 8 is the term of an A.P. $\frac{1}{3}, \frac{4}{3}, \frac{7}{3}, \dots$?
9. If $a = 1, d = 7, T_n = 64$, then find n and S_n ?
10. If the second term of the G.P. is 6 and 5th term is 162, then find the G.P.
11. Which element of the G.P. 4, 6, $\frac{18}{2}, \dots$ is $\frac{81}{4}$?
12. How many terms of the G.P. $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \dots$ will make the sum $\frac{63}{64}$?
13. Find the sum of 6 terms of the G.P. 1, 3, 9,
14. Find the sum of 8 elements of the G.P. -2, 4, -8,
15. If the 3rd term of a H.P is $\frac{1}{7}$ and 5th term is $\frac{1}{11}$, then find the 7th term.
16. If a, b, c are in G.P. and $a^x = b^y = c^z$, show that x, y, z are in H.P.
17. If the p^{th} element of an H.P. is q and q^{th} element is p , show that $(pq)^{\text{th}}$ element is 1.
18. Insert 4 arithmetic mean between 5 and 10.
19. Insert 3 geometric mean between -4 and -64.
20. Insert 3 harmonic mean between $\frac{1}{4}$ and $\frac{1}{12}$.

3 MARKS QUESTIONS

1. Find the three numbers in A.P. whose sum is 18 and their product is 210. **(Knowledge)**
2. Find the three numbers which are in A.P. whose sum is 12 and the sum of their cubes is 408.
3. Find the four numbers which are in A.P. whose sum is 20, and the product of whose extremes is 16.
4. The sum of four numbers which are in A.P is 28 and 10 times the least number is equal to 4 times the greatest number. Find the numbers.

BASIC MATHEMATICS

5. The sum of n elements of an A.P. 21, 23, 25, is 384. Find the number of terms and the last term.
6. How many terms of an A.P. $-5, -7, -9, \dots$ will make the sum -140 ?
7. Find the sum of all even numbers from 20 to 120.
8. Find the three numbers in G.P. whose sum is $\frac{31}{5}$ and their product is 1.
9. The third element of a G.P. is twice the second element and the fifth element is 32. Find the G.P.
10. Find the three numbers in G.P. whose sum is $\frac{13}{3}$ and product of the extremes is 1.
11. The first term of a G.P. exceeds the second term by $\frac{1}{2}$ and the sum to infinity is 2. Find the G.P.
12. The sum to infinity of a geometric series is 6 and the sum of first two terms is $\frac{9}{2}$. Find the first term and the common ratio.
13. The sum of an infinite G.P. whose common ratio is less than one is 32 and the sum of the first two terms is 24. Find the G.P.
14. If $b + c, c + a, a + b$ are in H.P. Show that a^2, b^2, c^2 are in A.P.

4 MARKS QUESTIONS

(Understanding)

1. The first and last term of the G.P. is 3 and 96 respectively, sum to n terms is 189. Find the common ratio and the number of terms.
2. Find the sum to n terms of the G.P. $4 + 44 + 444 + \dots$
3. Find the sum to n terms of the G.P. $7 + 77 + 777 + \dots$
4. Find the sum to n terms of the G.P. $0.6 + 0.66 + 0.666 + \dots$
5. Find the sum to n terms of the G.P. $0.5 + 0.55 + 0.555 + \dots$
6. The first and the last elements of a G.P. are 4 and 128 respectively, and the sum is 252. Find the common ratio and the number of terms.
7. The sum of an infinite G.P. whose common ratio is less than one, is 32, and the sum of the first two terms is 24. Find the G.P.

5 MARKS QUESTIONS

(Understanding)

1. Find the sum of all even integers between 30 and 426.
2. Find the sum of all integers between 100 and 300, which are divisible by 9.
3. Find the sum of all integers between 60 and 400, which are divisible by 13.

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4. Find the sum of all numbers between 50 and 200, which are divisible by 11.
5. Mr. Sambhav buys a used bike for ₹18,000. He pays ₹12,000 cash and agrees to pay the balance in annual instalments of ₹500 plus 10% interest on the unpaid amount. How much will the bike cost him?
6. A person buys every year Bank's cash certificate of value exceeding the last year's purchase by ₹500. After 15 years, he finds that the total value of the certificates purchased by him is ₹82,500. Find the value of the certificates purchased by him.
(a) in the first year (b) in the tenth year
