Multiple Choice Questions

1. The value of n for which the nth term of AP's 3, 10, 17, ... and 63, 65, 67, ... are equal is

   (a) 10   (b) 12   (c) 13   (d) 14

2. The first and last term of an AP are a and l and sum of the AP is S, then the common difference is $\dfrac{l^2 - a^2}{k - (l + a)}$. Here k is equal to

   (a) S (b) $2S$ (c) $3S$ (d) None of these

3. The value of x for which $3x$, $(x+8)$ and $(5x+2)$ are three consecutive terms of an AP is

   (a) $-\dfrac{7}{3}$ (b) $\dfrac{7}{3}$ (c) $\dfrac{3}{7}$ (d) $-\dfrac{3}{7}$

4. The digits of a positive integer, having three digits are in AP and their sum is 15. The number obtained by reversing the digits is 594 less than the original number. The number is

   (a) 594   (b) 852   (c) 849   (d) 952

Short Answer Type (I) Questions

5. Which term of the AP 3, 15, 27, 39, ... will be 120 more than its 21st term?

6. Find the 8th term from the end of the AP 17, 14, 11, ..., -40.

7. If four numbers in AP are such that their sum is 50 and the greatest number is 4 times the least, then find the numbers.

8. Write the expression $a_n - a_k$ for the AP $a, a+d, a+2d, ...$

   Hence, find the common difference of the AP for which 25th term is 10 more than the 23rd term.

9. Find the sum of all natural numbers between 200 and 1502 which are exactly divisible by 3.

10. Puneet saved ₹ 12 in the first week of a year and then increased his weekly saving by ₹ 1.75. If in the nth week, his weekly saving become ₹ 20.75, then find the value of n.

Short Answer Type (II) Questions

11. Find the sum of n terms of the sequence $\{a_n\}$, where $a_n = 5 - 6n$, $n \in N$.

12. How many terms of the AP $-6, -\dfrac{11}{2}, -5, ...$ are needed to give the sum -25?

13. The 8th term of an AP is zero. Prove that its 38th term is triple its 18th term.

14. Which term of the progression $19, 18\dfrac{1}{5}, 17\dfrac{2}{5}, ...$ is the first negative term?

Long Answer Type Questions

15. The sum of third and the seventh term of an AP is 6 and their product is 8. Find the sum of first sixteen terms of the AP

16. The ratio of the sum of n terms of two AP's is $(5n + 1):(2n + 17)$. Find the ratio of their mth terms.

Answers

1. (c)   **2.** (b)   **3.** (b)   **4.** (b)   **5.** 31st term

6. −19   **7.** 5, 10, 15, 20   **8.** 5   **9.** 369117   **10.** $n = 6$

11. $n(2 - 3n)$ **12.** 5 or 20   **14.** 25th term   **15.** When $d = \dfrac{1}{2}, S_{20} = 76$; When $d = \dfrac{-1}{2}, S_{20} = 20$

16. $(10m - 4):(4m + 15)$