

# NCERT Discrete-10.5.3-7

EE22BTECH11004 - Allu lohith

1. Find the sum of first 22 terms of an AP in which  $d = 7$  and 22nd term is 149.

Ans: let the series be,

$$a(0), a(1), a(2), a(3), \dots, a(n)$$

| Parameter | Description                      | Formulae/Value                           |
|-----------|----------------------------------|--|
| $a(0)$    | First term of A.P                | -  |
| $d$       | Common difference                | -  |
| $n$       | Count of terms starting from '0' | -  |
| $a(n)$    | $(n+1)^{th}$ term of the A.P     | $a(0) + nd$                              |
| $a(21)$   | Value of 22 <sup>nd</sup> term   | 149                                      |
| $S(n)$    | Sum of (n+1) terms in A.P        | $\left(\frac{n+1}{2}\right)(2a(0) + nd)$ |

TABLE 0  
PARAMETERS

Now, 22<sup>nd</sup> term means  $a(21)$ , So

$$a(21) = a(0) + nd \quad (1)$$

$$149 = a(0) + 21(7) \quad (2)$$

$$a(0) = 149 - 147 \quad (3)$$

$$a(0) = 2 \quad (4)$$

As,

$$S(n) = \left(\frac{n+1}{2}\right)(a(0) + nd) \quad (5)$$

So,

$$S(21) = \left(\frac{21+1}{2}\right)(2 \times 2 + 21 \times 7) \quad (6)$$

$$s(21) = 11 \times 151 \quad (7)$$

$$s(21) = 1661 \quad (8)$$

| Parameter | Description            | Value |
|-----------|------------------------|-------|
| $a(0)$    | First term of A.P      | 2     |
| $S(21)$   | Sum of 22 terms in A.P | 1661  |

TABLE 0  
RESULTS