



Blue Print (As per PU Board)

Topic	1 mark questions	2 marks questions	3 marks questions	4 marks questions	5 marks questions	Total Marks
Sequence & Series	1	-	2	1	-	11

**One mark questions**

- Write the first Three terms of Sequence whose  $n^{\text{th}}$  term is  $2^n$   
 Answer:  $a^n = 2^n$       2, 4, 8
- Write the first Three terms of Sequence whose  $n^{\text{th}}$  term is  $n(n-2)$   
 Answer:  $a_n = n(n-2)$       -1, 0, 3
- Write the first five terms of the sequence whose  $n^{\text{th}}$  term is  $4n+1$   
 Answer:  $a_n = 4n+1$       5, 9, 13, 17, 21

**Two marks questions**

- If the Third and Seventh terms of an A.P. are 18 & 30 respectively. Find the first term and common difference?  
 Answer:  $a_3 = 18 \Rightarrow a + 2d = 18$   
 $a_7 = 30 \Rightarrow a + 6d = 30$   
 $d = 3, a = 12$
- A Student purchased a pen for Rs.100. At the end of 8 years, it was valued at Rs. 20. Assuming the yearly depreciation is a constant amount. Find the annual depreciation?  
 Answer: Original cost of pen =  $a = \text{Rs.}100$  Let 'd' be the annual depreciation price after eight years  
 $= a_8 = 20$   
 $\therefore d = \text{Rs.}10$
- Find the sum of 15 terms of A.P. 2, 8, 14.....  
 Answer:  $a = 2, d = 6, n = 15$   
 $S_{15} = 660$

**Three marks questions**

- The sum of three numbers in A.P. is 24 and their product is 440. Find the numbers.  
 Answer:  $a-d, a, a+d$  are in A.P.  
 $(a-d) + a + (a+d) = 24$   
 $(a-d)a(a+d) = 440$   
 $a = 8, d = \pm 3$   
 The nos. are 5, 8, 11
- The sum of three numbers in A.P. is -3 and thus product is 8. Find the number.  
 Answer:  $(a-d), a, (a+d)$  are in A.P.  
 $a = -1, d = \pm 3$   
 $\therefore$  The nos. are -4, -1, 2.
- Find the sum of -29 -24 -19 -14.....+91  
 Answer: -29, -24, -17, -14,.....91 are in A.P  
 $n = 25$        $S_{25} = 775$

**Five marks questions**

- Find the sum of all natural numbers between 100 & 1000 which are multiple of 5.  
 Answer: Required natural Nos. are 105, 110, 115,.....995, which are in A.P.



$$a_n = a + (n-1)d \Rightarrow n = 179$$

$$\therefore S_{179} = 98,450$$

11. **The sum of the First Ten terms of an A.P. is 185. If the 13th term is 41. Find the sum to first 25 terms?**

$$\text{Answer: } S_{10} = 185 \quad \Rightarrow \quad 2a + 9d = 37 \quad \rightarrow 1$$

$$a_{13} = 41 \quad \Rightarrow \quad a + 12d = 41 \quad \rightarrow 2$$

From 1 & 2 we get  $d = 3$

$$\therefore a = 5$$

$$\therefore S_{25} = 1025$$

12. **Find the sum of 9+99+999+..... to n terms.**

Answer:  $= (10-1) + (100-1) + (1000-1) + \dots +$  to  $n$  terms.

$$= (10 + 10^2 + 10^3 + \dots + 10^n) - (1 + 1 + 1 + \dots + 1)$$

$$= 10 \frac{\{10^n - 1\}}{10 - 1} - n \quad \quad 10, 10^2, 10^3 \dots \text{ are in G.P.}$$

$$= \frac{10^{n+1} - 10}{9} - n \quad \quad = \frac{1}{9} [10^{n+1} - 9n - 10]$$