

**National Institute of Open Schooling**  
**Senior Secondary Course: Mathematics**  
**Lesson 7: Some Special Sequences**  
**Worksheet-07**

1 Write the first five terms of the following Sequences, whose  $n^{\text{th}}$  terms are as:

i.  $an = 3n + 2$

ii.  $an = n^2 + n - 1$

2 Find out the  $n^{\text{th}}$  term of the following series:

a)  $1 - 1 + 1 - 1 + \dots$

b)  $\sqrt{2} + \sqrt{3} + 2 + \sqrt{5} + \dots$

3 Find the sum of first  $n$  terms of the series  $1 \times 3 + 3 \times 5 + 5 \times 7 + \dots$

4 Determine the sum of the cube of the first  $n$  natural numbers.

5 Find the sum of first  $n$  terms of the series

$$\frac{1}{1 \times 3} + \frac{1}{3 \times 5} + \frac{1}{5 \times 7} + \dots$$

6 Find the  $20^{\text{th}}$  terms of the series

$$2 \times 4 + 4 \times 6 + 6 \times 8 + \dots + n \text{ terms}$$

7 Determine the sum of series up to  $n$  terms of

$$5 + 55 + 555 + \dots$$

8 In the series

$$\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \dots, \text{ find the sum of } n \text{ terms.}$$

9 Write any two series of integers of number system.

10 Differentiate between sequences and series with examples.