

Assignment-2

EE1205 : Signals and Systems
Indian Institute of Technology Hyderabad

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I. QUESTION 11.9.1 (5)

Write the first five terms of the sequence whose n^{th} term is : $x(n) = (-1)^{n-1} 5^{n+1}$.

II. SOLUTION

Parameter	Value	Description
$x(n)$	$(-1)^{n-1} 5^{n+1}$	General Term
$x(0)$	-5	First term of G.P.
r	-5	Common ratio of G.P.

TABLE 1
GIVEN PARAMETERS

On substituting $n = 0, 1, 2, 3$ and 4 , we get the first five terms

Hence, the required terms are -5, 25, -125, 625, -3125 .

The Z-transform of a sequence $x(n)$ is given by:

$$x(n) = (-1)^{n-1} 5^{n+1} u(n) \quad (1)$$

$$X(Z) = \frac{-5z}{z+5}; (|z| > 5) \quad (2)$$

