**Time Complexity Analysis:**

The time complexity of the Z Algorithm can be analysed based on length of the concatenated string.

1. The length of the concatenated string is (m+n), where m is length of the pattern and n is length of the text. So traversing the string takes linear time that is = O(m+n).
2. Whenever a while loop is encountered, if k number of operations are performed but the next k iterations of the outer loops are skipped as the upper bound is increased by k every time. So the total time taken for creating Z array remains O(m+n).
3. Time taken for searching m in the Z array also takes O(m+n) time.

So the total time complexity is:-Total time taken for creating Z array remains O(m+n) + Time taken for searching m in the Z array also takes O(m+n) time = O(m+n) + O(m+n) = O(m+n)

So, Total Time Complexity: O(m+n)

Therefore, the total time complexity of the Z Algorithm for pattern matching in a text of length n with a pattern of length m is O(n+m).