Formulating the given problem as a language:

$$L = \left\{ \langle M, w \rangle \middle| \begin{array}{l} M \text{ is a single tape Turing machine which writes a blank symbol} \\ \text{on non blank symbol while computing any input string} \end{array} \right\}$$

Proving that the given problem is undecidable:

By using contradiction, assume that the language L is decidable. Suppose that N is a decider for proving the decidability of the language L. A Turing machine *N* can be constructed as:

N = "On Input $\langle M, s \rangle$

• Construct a Turing machine A' now:

a. A'writes # (a non-blank symbol) if *M* writes a blank symbol

b. Whenever A'reads #, use the transitions specified by the blank symbols.

c. A'Writes # on the tape before accepting and overwrites it with a blank symbol.

• Output of A"will be input for decider N. If $N(\langle M', s \rangle)$ accepts, accept, otherwise reject.

Now, the conclusion can be made that a blank symbol is written by A' only when A' takes the input s. That is, N is a decider for A_{TM} which is a contradiction. Hence, **the given problem is undecidable.**