Given a rational map $\phi : \mathbb{P}^1 \rightarrow \mathbb{P}^1$ defined over a number field $K$, we prove a finiteness result for $\phi$-preperiodic points which are $S$-integral with respect to a non-preperiodic point $P$, provided $P$ satisfies a certain local condition at each place. This verifies a special case of a conjecture of S. Ih. (Received September 19, 2007)