1. Recall that, in denotational semantics, the state is a triple \(<\text{mem}, i, o>\).

(a) Which component(s) of the state are changed by a read instruction?
   \textbf{Answer:} i, mem

(b) Which component(s) of the state are changed by a write instruction?
   \textbf{Answer:} o (only)

(c) Which component(s) of the state are changed by an assignment?
   \textbf{Answer:} \text{mem}

2. What is the denotational semantics of the following program, where the initial input stream contains only the integer \(z\)?
   \begin{verbatim}
   read(n);
i := n+1;
write(i);
   \end{verbatim}

   \text{Hint: it is a very short answer!}

   \textbf{Answer:} <z+1>. Also acceptable: \(z + 1\), although technically the answer is a sequence.