

CSCE 330 Fall 2007
QUIZ 9
Assigned Thursday, 07-10-04

1. Recall that, in denotational semantics, the *state* is a triple $\langle \text{mem}, i, o \rangle$.
 - (a) Which component(s) of the state are changed by a *read* instruction?
Answer: i, mem
 - (b) Which component(s) of the state are changed by a *write* instruction?
Answer: o (only)
 - (c) Which component(s) of the state are changed by an assignment?
Answer: mem

2. What is the denotational semantics of the following program, where the initial input stream contains only the integer z ?

```
read(n);  
i := n+1;  
write(i);
```

Hint: it is a very short answer!

Answer: $\langle z+1 \rangle$. Also acceptable: $z + 1$, although technically the answer is a sequence.