

Write a microcode fragment that determines the value memory indirect pointer (i.e., a memory address indexes another memory address). The referenced value should be placed in R1. The memory pointer (stored in memory 100) should be incremented to the next word following the reference.

| <i>cycle</i> | <i>X</i> | <i>Y</i> | <i>Z</i> | <i>rwe</i> | <i>im en</i> | <i>im va</i> | <i>au en</i> | <i>-a/s</i> | <i>lu en</i> | <i>lf</i> | <i>su en</i> | <i>st</i> | <i>ld en</i> | <i>st en</i> | <i>r/-w</i> | <i>m sel</i> | <i>description</i> |
|--------------|----------|----------|----------|------------|--------------|--------------|--------------|-------------|--------------|-----------|--------------|-----------|--------------|--------------|-------------|--------------|--------------------|
| 1 | X | X | 2 | 1 | 1 | 100 | 0 | X | 1 | C | 0 | X | 0 | 0 | X | 0 | R2 ← 100 |
| 2 | 2 | X | 3 | 1 | 0 | X | 0 | X | 0 | X | 0 | X | 1 | 0 | 1 | 1 | R3 ← [R2] |
| 3 | 3 | X | 1 | 1 | 0 | X | 0 | X | 0 | X | 0 | X | 1 | 0 | 1 | 1 | R1 ← [R3] |
| 4 | 3 | X | 3 | 1 | 1 | 4 | 1 | 0 | 0 | X | 0 | X | 0 | 0 | X | 0 | R3 ← R3 + 4 |
| 5 | 2 | 3 | X | 0 | 0 | X | 0 | X | 0 | X | 0 | X | 0 | 1 | 0 | 1 | [R2] ← R3 |