CSCI3100 In-Class Practice

Finite State Machines

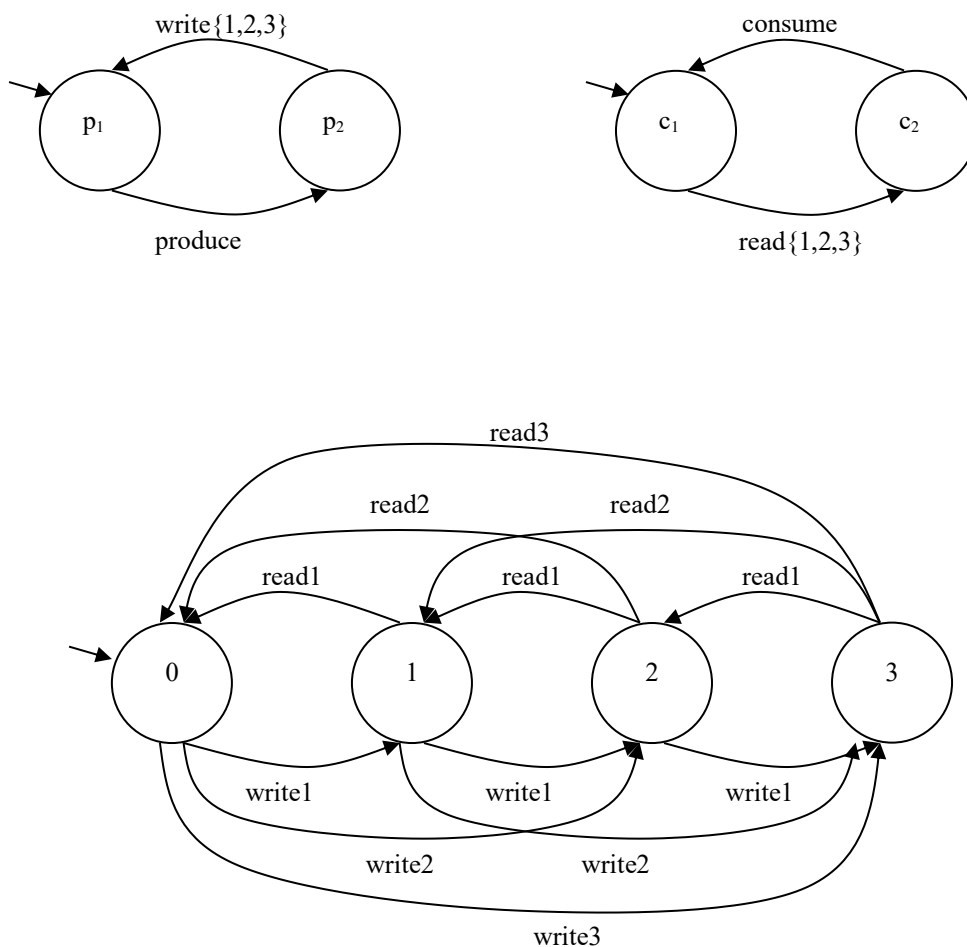Date: _____
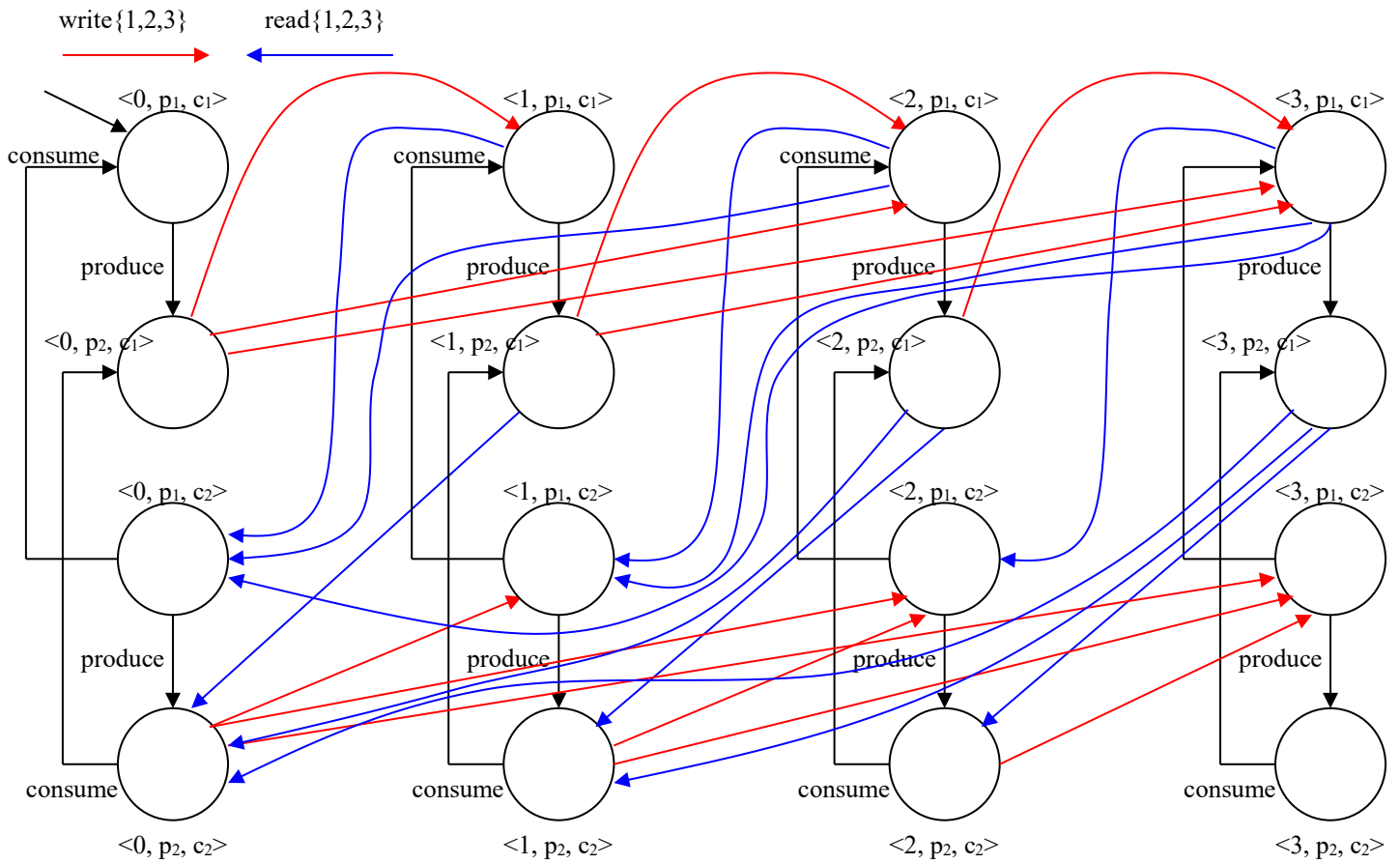
Students Names: IDs:

_____

_____

_____

_____

Construct a Finite State Machine to specify the problem in Example 4.13 (A Producer-Consumer System) with the following additional features:

1. There are three buffer slots. Each message occupies one buffer slot.
2. As long as there are enough buffer slots available, the producer has the options to write either 1, 2, or 3 messages at the same time.
3. As long as there are messages in the buffer, the consumer has the options to read either 1, 2, or 3 messages at the same time.

How many total states and arcs in the Finite State Machine?

Total number of states: $4 \times 2 \times 2 = 16$

Total number of arcs: 40 (8 "produce", 8 "consume", 12 "read" , 12 "write")