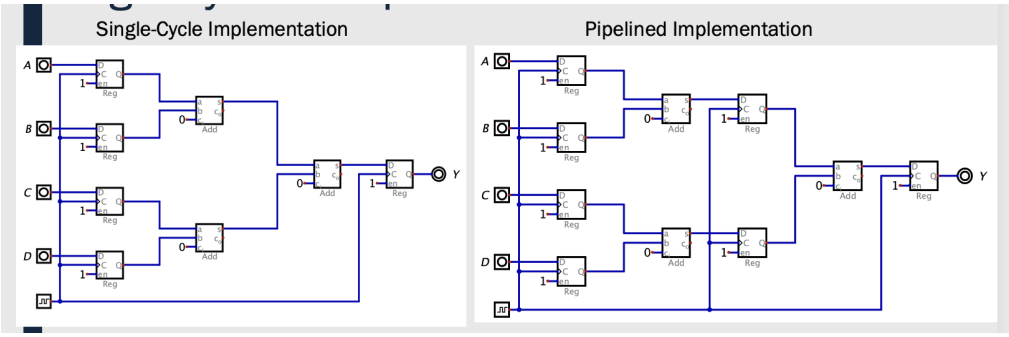
COMP311 In-Class Practice 11/2/26 Name: _____

Question 1: Performance Analysis Given the single cycle and pipelined implementation of the same circuit below, answer the following questions.



1.1. What is the latency of an operation in the single-cycle implementation?

1.2. What is the latency of an operation in the the pipelined implementation?

1.3. Is the throughput higher in the single cycle example or the pipelined example?

1.4. What is the speedup for executing 10 operations?

1.5. If we had performed 20 operations, would the speedup be higher?Note, you shouldn't have to do any math for this

Question 2: More Performance Analysis

Column 1: Single Cycle Implementation

2.1. What is the longest combinational path?

2.2. What is the min clock period (critical path)?

2.3. If the clock period is at least the min period, how many clock cycles does it take to perform one operation?

2.4. If we run this circuit at the minimum clock period, how long will it take to complete 10 operations?

Column 2: Pipelined Implementation

2.5. What is the longest combinational path?

2.6. What is the min clock period (critical path)?

2.7. If the clock period is at least the min period, how many clock cycles does it take to perform one operation?

2.8. If we run this circuit at the minimum clock period, how long will it take to complete 10 operations?