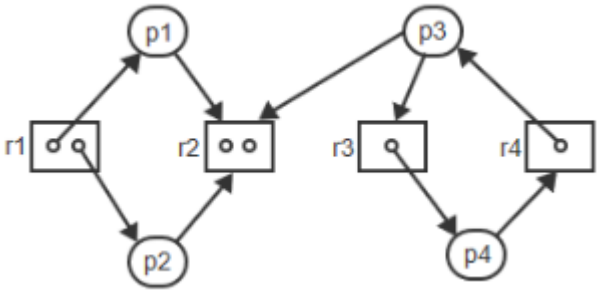
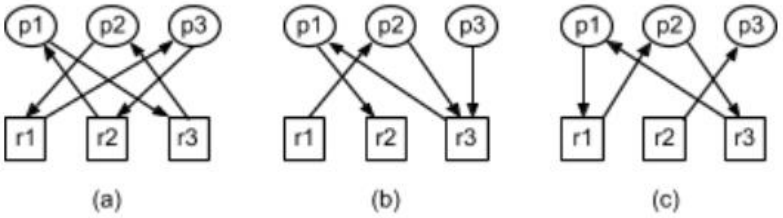
CS3600 – Worksheet 05

1. From the resource allocation graph, which processes are blocked and deadlocked?

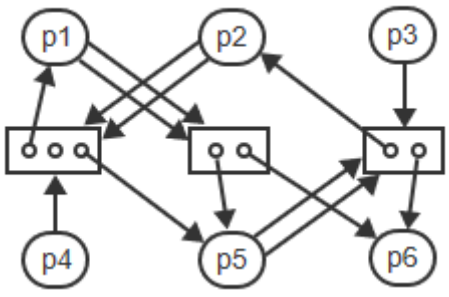


2. Given the resource allocation graph



   a. Which process is not blocked in the graph (a)?
   b. Which process is not blocked in the graph (b)?
   c. Which process is not blocked in the graph (c)?
   d. Which graph is completely reducible and thus not a deadlock state?

3. Using graph reduction, determine if the graph contains a deadlock. Which all process are removed?



4. Processes p1, p2, and p3 are executing concurrently. The variables x, y, and z are binary semaphores, all initialized to 1. The arrow points to the currently executing instruction.

P1	P2	P3
... P(x) ... P(z) <-- ...	... P(y) ... <--	... P(z) ... P(x) <-- ...

(a) To determine if the state is a deadlock state, draw a resource allocation graph by interpreting each semaphore as a resource containing 1 unit and each P operations as a request for the resource.

(b) Reduce the graph to determine if the state contains a deadlock.