Chapter 4 – Process Scheduling Algorithms

4-1) First Come First Served (FCFS)

Job	Arrival	CPU Cycles	Finish	Wait	Turnaround
A	0	10			
B	1	2			
C	2	3			
D	3	1			
E	4	5			

GANTT CHART: AVG WAIT: AVG TURN:

4-2) Shortest Job Next (SJN)

Job	Arrival	CPU Cycles	Finish	Wait	Turnaround
A	0	10			
B	1	2			
C	2	3			
D	3	1			
E	4	5			

GANTT CHART: AVG WAIT: AVG TURN:

4-3) Shortest Remaining Time (SRT)

Job	Arrival	CPU Cycles	Finish	Wait	Turnaround
A	0	10			
B	1	2			
C	2	3			
D	3	1			
E	4	5			

GANTT CHART: AVG WAIT: AVG TURN:

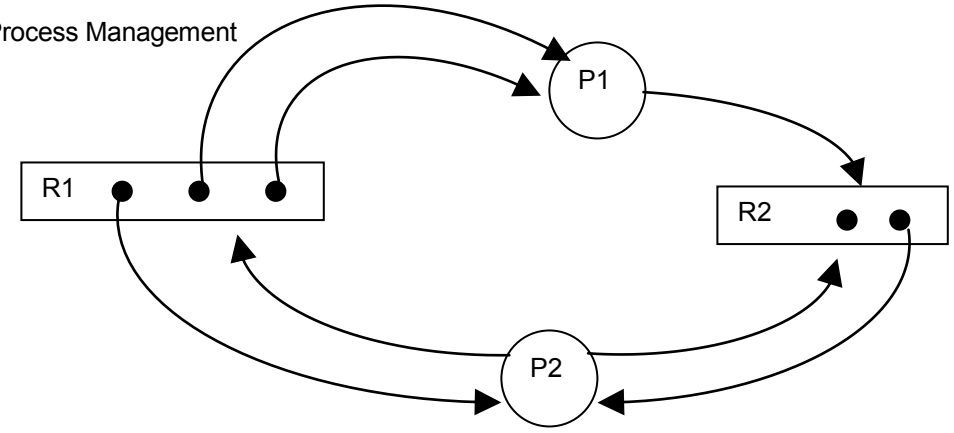
4-4) RR with time quantum of 2

Job	Arrival	CPU Cycles	Finish	Wait	Turnaround
A	0	10			
B	1	2			
C	2	3			
D	3	1			
E	4	5			

GANTT CHART: AVG WAIT: AVG TURN:

Chapter 5 – Process Management

5-1)



A) Is this system deadlocked?

B) Are there any blocked processes?

C) What is the resulting graph after reduction by P1? Draw in workspace below.

D) What is the resulting graph after reduction by P2? Draw in workspace below.

E) Both P1 and P2 have requested R2:

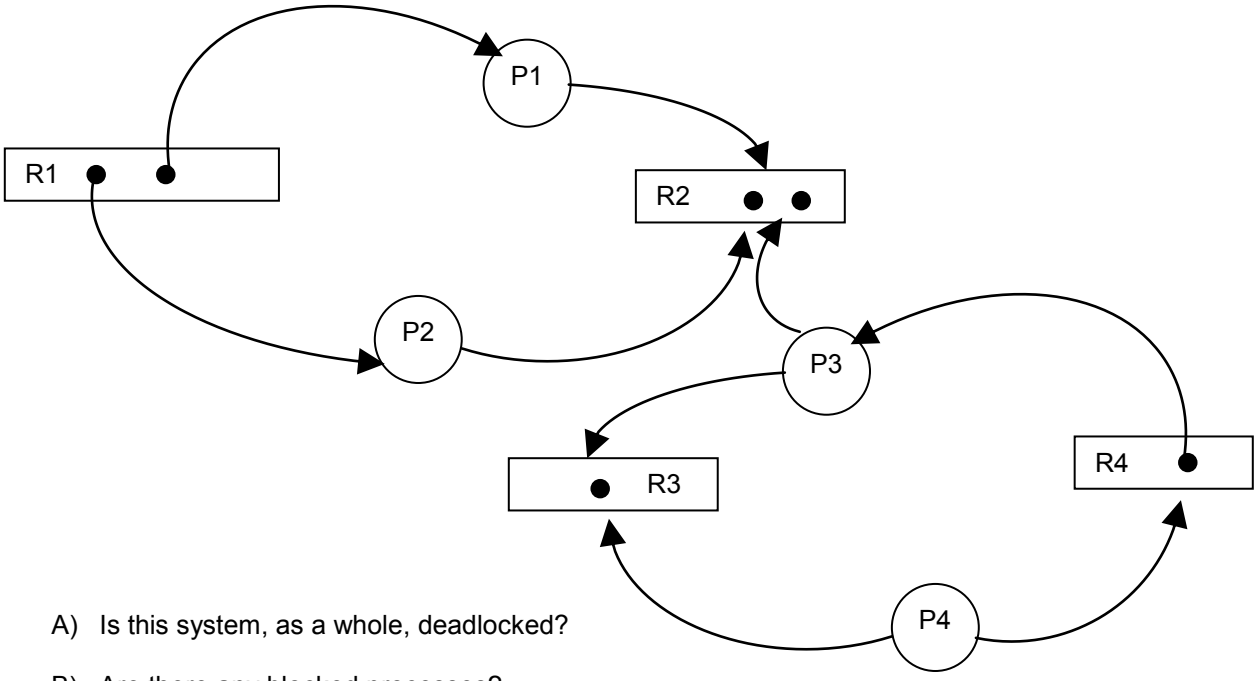
i. What is the status of the system if P2's request is granted before P1's?

ii. What is the status of the system if P1's request is granted before P2's?

Draw C

Draw D

5-2) Consider the following directed resource graph:



A) Is this system, as a whole, deadlocked?

B) Are there any blocked processes?

C) Three process – P1, P2,and& P3 – are requesting resources from R2:

   i. Which requests would you satisfy to minimize the number of processes involved in the deadlock?

   ii. Which requests would you satisfy to maximize the number of processes involved in the deadlock?

D) Can the graph be reduced partially or totally?.

E) Can the deadlock be resolved without selecting a victim?

5-3) Assume all devices are of the same type. For each of the following

- determine the remaining needs for each job
- determine whether each of the systems is safe or unsafe
- If system is in a safe state, list the sequence of requests and releases that will make it possible for all process to run to completion.
- If the system is in an unsafe state, show how it's possible for deadlock to occur.

A) System number 1 has 12 devices; only 1 is available.

Job Number	Devices Allocated	Maximum Required	Remaining Needs
1	5	6	
2	4	7	
3	2	6	
4	0	2	

SAFE or UNSAFE?

B) System number 2 has 14 devices; only 2 are available.

Job Number	Devices Allocated	Maximum Required	Remaining Needs
1	5	8	
2	3	9	
3	4	8	

SAFE or UNSAFE?

C) System number 3 has 12 devices; only 2 are available.

Job Number	Devices Allocated	Maximum Required	Remaining Needs
1	5	8	
2	4	6	
3	1	4	

SAFE or UNSAFE?