Banker Algorithm

Consider the system having multiple instances of each resource type and you are provided with the resources allocation with the demand and the system reach at the point where each processes demand for remaining resources. So, the data set is.

| Process	Max-Need				Allocated Resources				Remaining need				Available resources			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
P0	9	6	6	3	3	3	3	1					4	2	5	1
P1	15	6	7	5	2	5	2	1								
P2	14	5	6	1	1	3	1	0								
P3	4	3	5	3	2	1	2	0								
P4	8	7	6	9	5	3	1	3								
P5	3	2	8	5	3	2	5	4								
P6	9	6	9	9	1	1	3	3								

  i.   Find remaining need
  ii. Find total number of resources of each type.
  iii. Find whether the system is in safe state or not if yes find the safe sequence using all computation

Process	Max-Need				Allocated Resources				Remaining need				Available resources			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
P0	9	6	6	3	3	3	3	1	6	3	3	2	4	2	5	1
P1	15	6	7	5	2	5	2	1	13	1	5	4	18	12	19	12
P2	14	5	6	1	1	3	1	0	13	2	6	4	20	17	21	13
P3	4	3	5	3	2	1	2	0	2	2	3	3	10	7	13	6
P4	8	7	6	9	5	3	1	3	3	4	5	6	12	8	15	6
P5	3	2	8	5	3	2	5	4	0	0	3	1	7	4	10	5
P6	9	6	9	9	1	1	3	3	8	5	6	6	17	11	16	13
													21	20	22	13

  1. A
  2. A=21 B=20 C=22 D=13
  3. The system has safe sequence and the safe sequence is p5,p0,p3,p4,p6,p1,p2

Resource Allocation Graph

Consider the following graph and whether it contains deadlock or not? If not the find the safe sequences of resource allocation?
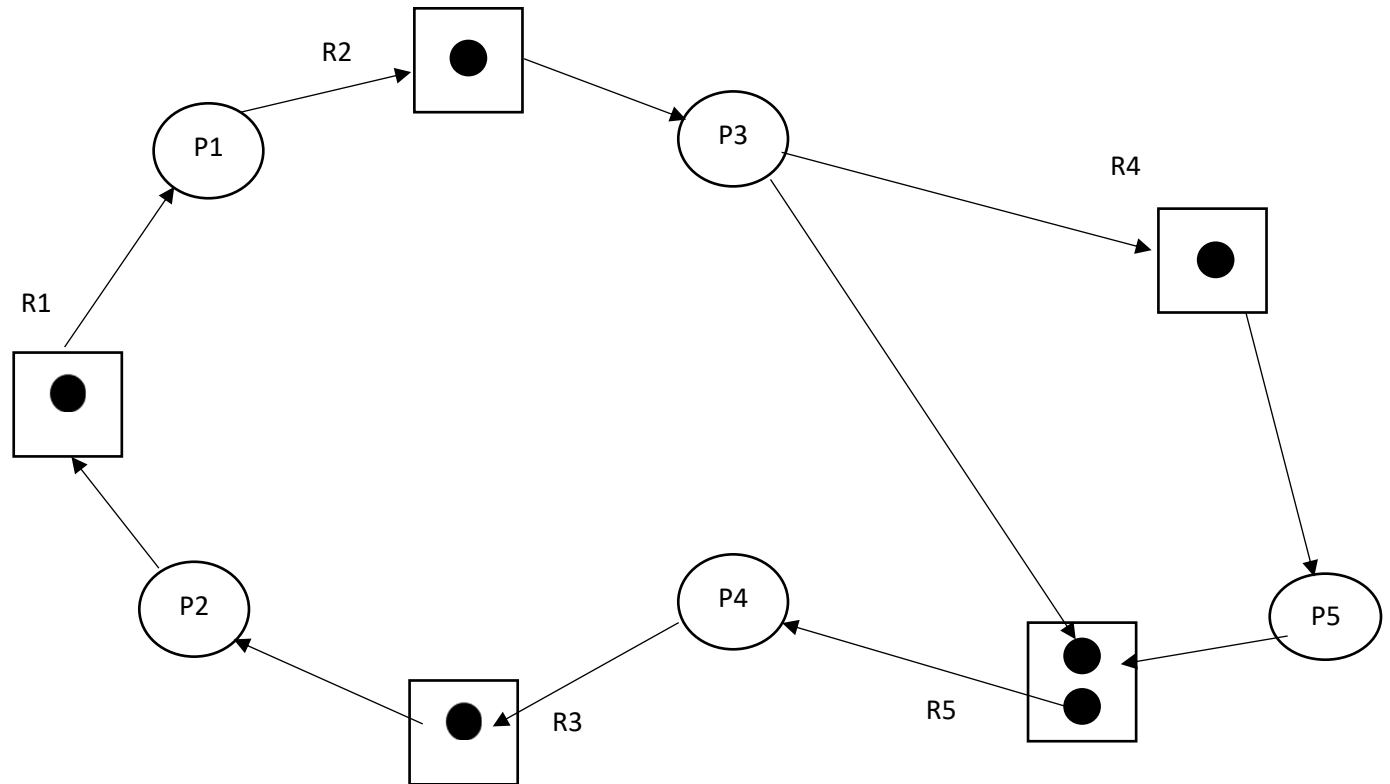
The above graph doesn't contain deadlock and the safe sequence is

P5,p3,p1,p2,p4