

أسئلة مراجعة لمادة نظم تشغيل تشمل  
الوحدة ٥ + ٨

Q1: Considers the following set of processes:

Process ID	Arrival Time	CPU Burst Time (ms)
P1	0	9
P2	3	3
P3	5	5
P4	4	2

- a) Draw a Gantt chart illustrating the execution of these processes using the First Come First Serve(FCFS) algorithm
- b) Calculate mean waiting time, mean turn-around time, CPU utilization, and mean average waiting time

Q2: Suppose that the processes arrive in the order: P1 , P4 , P3,P2

Process ID	CPU Burst Time (ms)
P1	15
P2	7
P3	8
P4	3

- a) Draw a Gantt chart illustrating the execution of these processes using the First Come First Serve(FCFS) algorithm
- b) Calculate mean waiting time, mean turn-around time, CPU utilization, and mean average waiting time

Q3: Suppose that the processes arrive in the order: P1 , P4 , P3,P2

Process ID	CPU Burst Time (ms)
P1	6
P2	8
P3	7
P4	3

a) Draw a Gantt chart illustrating the execution of these processes using the Shortest Job First (SJF)algorithm

b) Calculate mean waiting time, mean turn-around time, CPU utilization, and mean average waiting time

Q4: Considers the following set of processes:

Process ID	Arrival Time	CPU Burst Time (ms)
P1	2	1
P2	1	3
P3	0	5

- a) Draw a Gantt chart illustrating the execution of these processes using the Shortest Remaining Time First (SRTF) algorithm
- b) Calculate mean waiting time, mean turn-around time, CPU utilization, and mean average waiting time

Q5: Considers the following set of processes:

Process ID	Arrival Time	CPU Burst Time (ms)
P1	0	8
P2	1	4
P3	2	9
P4	3	5

a) Draw a Gantt chart illustrating the execution of these processes using the Shortest Remaining Time First (SRTF) algorithm

b) Calculate mean waiting time, mean turn-around time, CPU utilization, and mean average waiting time

Q6: Suppose that the processes arrive in the order: P1 , P2,P3,

Process ID	CPU Burst Time (ms)
P1	24
P2	3
P3	3

a) Draw a Gantt chart illustrating the execution of these processes using the Round Robin(RR)algorithm Quantum = 3

b) Calculate mean waiting time, mean turn-around time, CPU utilization, and mean average waiting time

Q7: Considers the following set of processes:

Process ID	Arrival Time	CPU Burst Time (ms)
P1	0	20
P2	3	14
P3	5	6
P4	4	4

a) Draw a Gantt chart illustrating the execution of these processes using the Round Robin(RR)algorithm Quantum = 2

b) Calculate mean waiting time, mean turn-around time, CPU utilization, and mean average waiting time



Q8: Considers the following set of processes:

Process ID	CPU Burst Time (ms)	Priority
P1	10	3
P2	1	1
P3	2	4
P4	1	5
P5	5	2

a) Draw a Gantt chart illustrating the execution of these processes using the Priority algorithm

b) Calculate mean waiting time, mean turn-around time, CPU utilization, and mean average waiting time

Q9: Considers the following set of processes:

Process ID	Arrival Time	CPU Burst Time (ms)	Priority
P1	0	11	2
P2	5	28	0
P3	12	2	3
P4	2	10	1
P5	9	16	4

a) Draw a Gantt chart illustrating the execution of these processes using the **Preemptive** Priority algorithm

b) Calculate mean waiting time, mean turn-around time, CPU utilization, and mean average waiting time

Q10: Considers the following set of processes:

Process ID	Arrival Time	CPU Burst Time (ms)	Priority
P1	0	4	2
P2	1	3	3
P3	2	1	4
P4	3	5	5
P5	4	2	5

a) Draw a Gantt chart illustrating the execution of these processes using the **Non-Preemptive** Priority algorithm

b) Calculate mean waiting time, mean turn-around time, CPU utilization, and mean average waiting time

Q11: Considers the following set of processes:

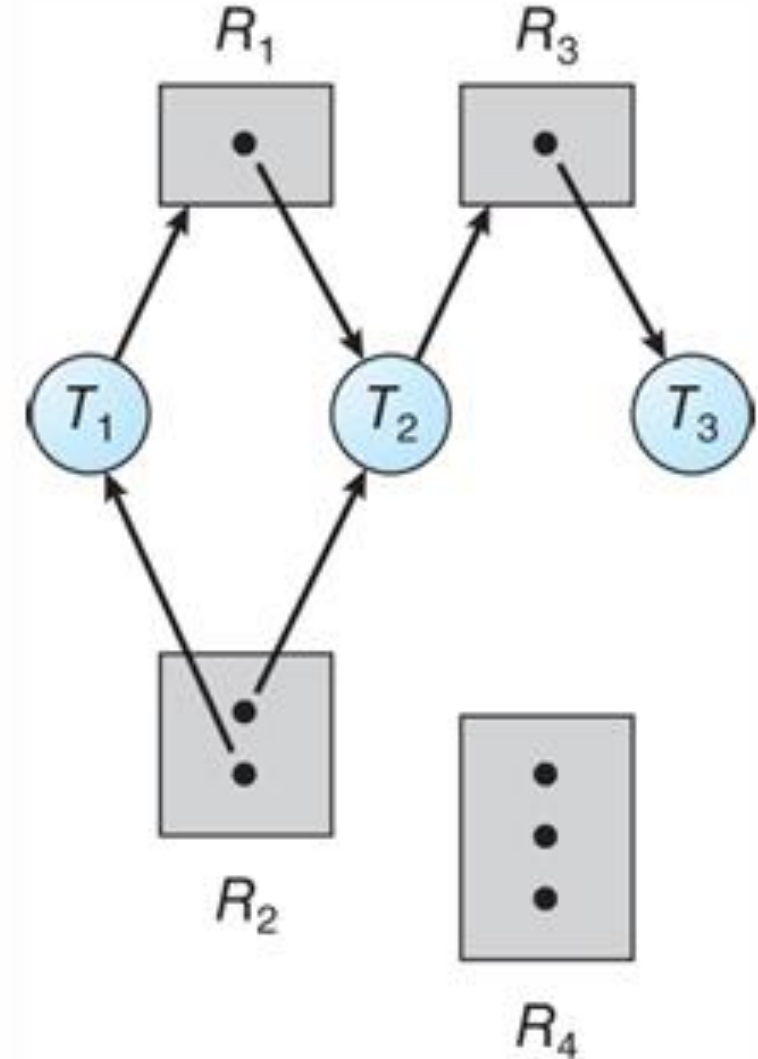
Process ID	CPU Burst Time (ms)	Priority
P1	4	3
P2	5	2
P3	8	2
P4	7	1
P5	3	3

- a) Draw a Gantt chart illustrating the execution of these processes using the **Preemptive** Priority and Round Robin(RR)algorithm Quantum = 2
- b) Calculate mean waiting time, mean turn-around time, CPU utilization, and mean average waiting time

Q12: Referring to following figure find out whether there is deadlock in the system. If so, what are the deadlocked processes?

a) Is there deadlock in the system?

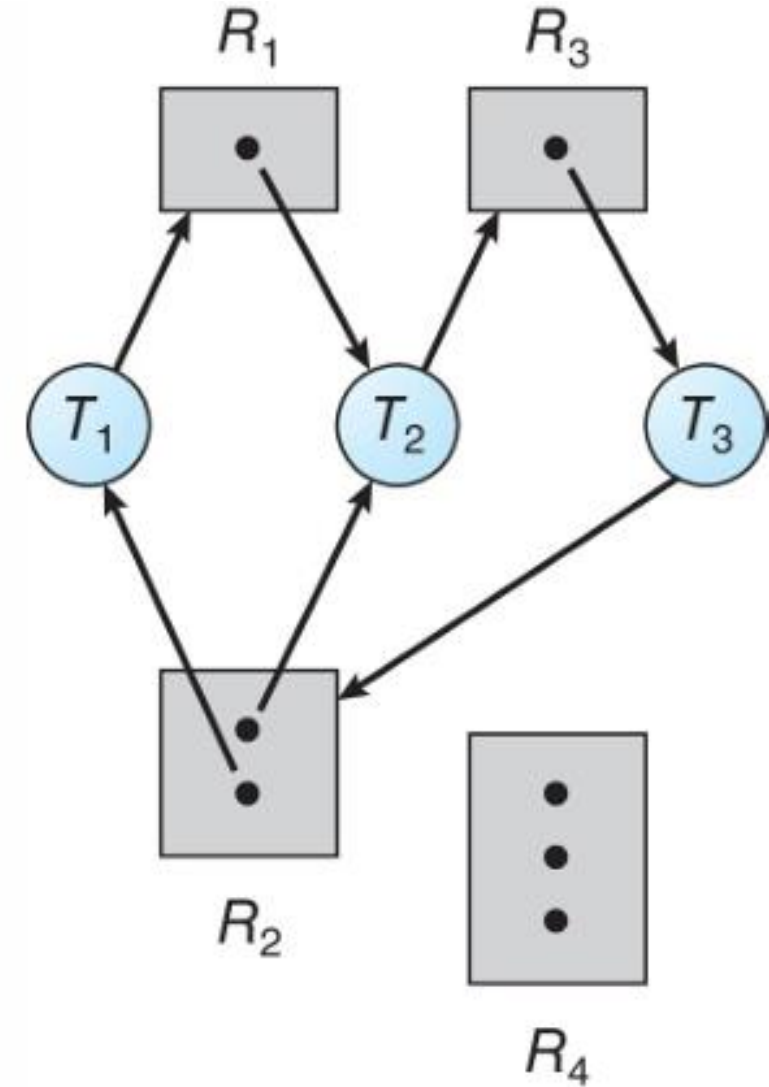
b) If the answer is "Yes", the deadlocked processes are:



Q13: Referring to following figure find out whether there is deadlock in the system. If so, what are the deadlocked processes?

a) Is there deadlock in the system?

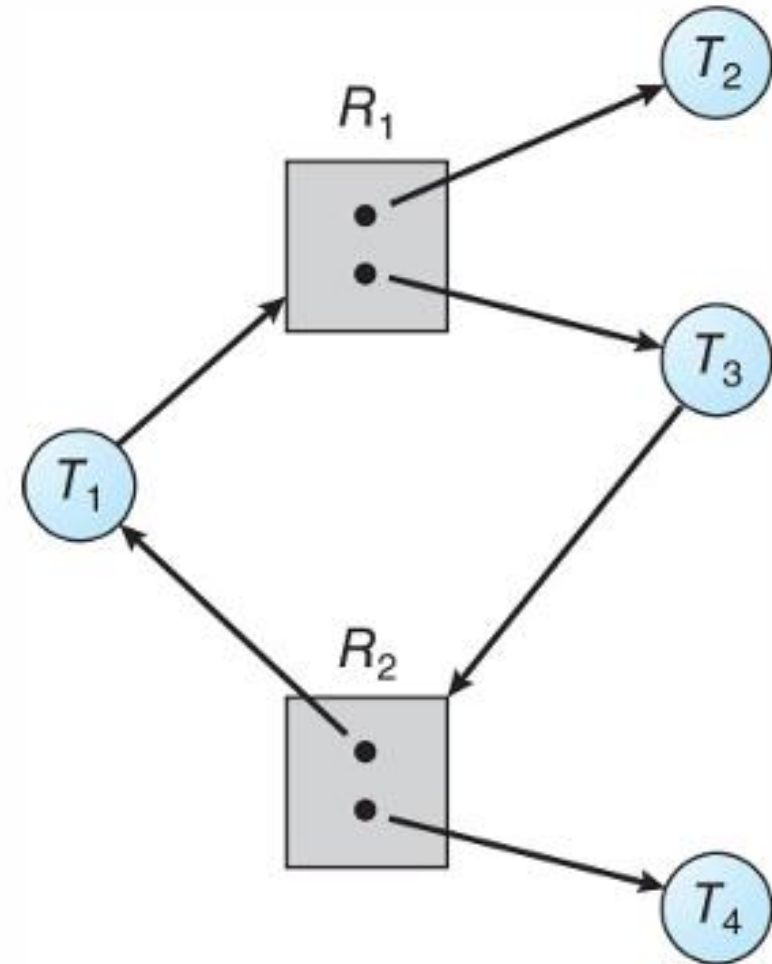
b) If the answer is "Yes", the deadlocked processes are:



Q14: Referring to following figure find out whether there is deadlock in the system. If so, what are the deadlocked processes?

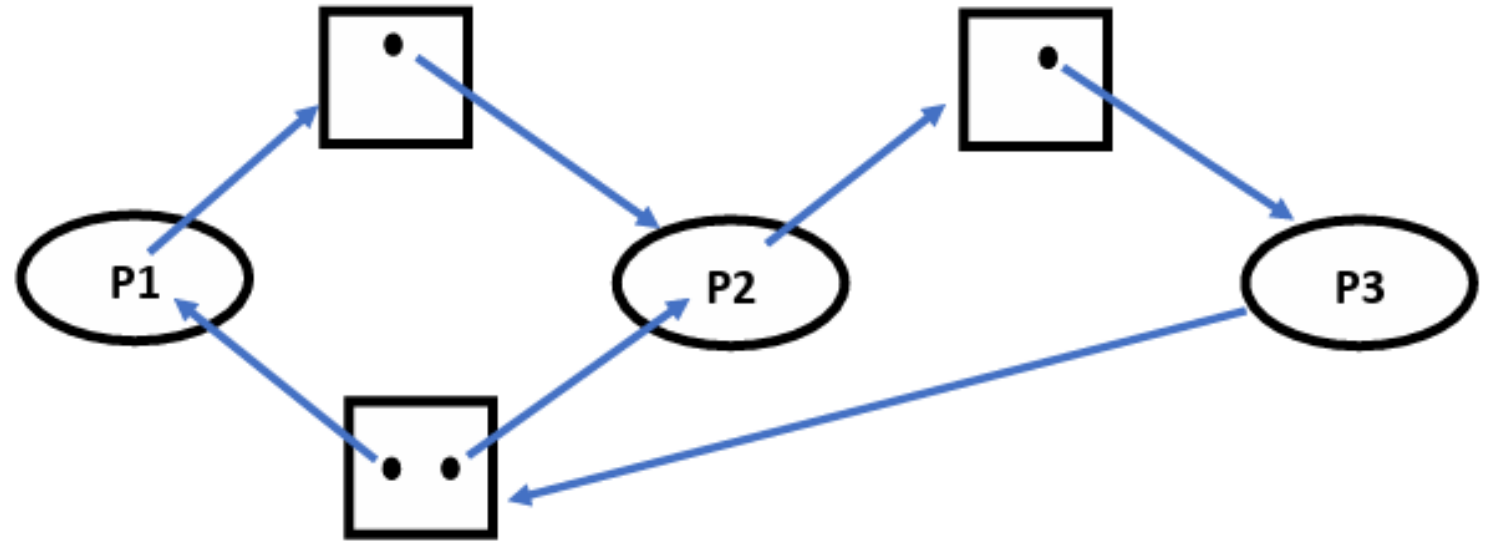
a) Is there deadlock in the system?

b) If the answer is "Yes", the deadlocked processes are:



Q15: Referring to following figure find out whether there is deadlock in the system. If so, what are the deadlocked processes?

a) Is there deadlock in the system?



b) If the answer is "Yes", the deadlocked processes are:



Q16: The following matrices illustrate the situation of a computer system.

Allocation				Max			Available			NEED		
	A	B	C	A	B	C	A	B	C	A	B	C
T0	0	1	0	7	5	3	3	3	2			
T1	2	0	0	3	2	2						
T2	3	0	2	9	0	2						
T3	2	1	1	2	2	2						
T4	0	0	2	4	3	3						

Assume that the total number of each system resource is  $\langle 10, 5, 7 \rangle$  where and  $R_i$  means the amount of resource  $P_i$

- a) What are the contents of the matrix NEED?
- b) Is the system a safe state? If yes, write a safe sequence.

Q17: The following matrices illustrate the situation of a computer system.

Max					Allocation				NEED				Work			
	R0	R1	R2	R3	R0	R1	R2	R3	R0	R1	R2	R3	R0	R1	R2	R3
P0	3	2	1	1	2	0	1	1								
P1	1	2	0	2	1	1	0	0								
P2	1	1	2	0	1	1	0	0								
P3	3	2	1	0	1	0	1	0								
P4	2	1	0	2	0	1	0	1								

Assume that the total number of each system resource is  $\langle 10, 10, 7, 8 \rangle$  where  $R_i$  means the amount of resource  $P_i$

- a) What are the contents of the matrix NEED?
- b) Is the system a safe state? If yes, write a safe sequence.

Q18: The following matrices illustrate the situation of a computer system.

Allocation					Max				Available				NEED			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
P0	0	0	1	2	0	0	1	2	1	5	2	0				
P1	1	0	0	0	1	7	5	0								
P2	1	3	5	4	2	3	5	6								
P3	0	6	3	2	0	6	5	2								
P4	0	0	1	4	0	6	5	6								

Assume that the total number of each system resource is  $\langle 3, 14, 12, 12 \rangle$  where  $R_i$  means the amount of resource  $P_i$

- a) What are the contents of the matrix NEED?
- b) Is the system a safe state? If yes, write a safe sequence.

Q19: The following matrices illustrate the situation of a computer system.

Max					Allocation				NEED				Work			
	R0	R1	R2	R3	R0	R1	R2	R3	R0	R1	R2	R3	R0	R1	R2	R3
P0	4	2	1	2	2	0	0	1								
P1	5	2	5	2	3	1	2	1								
P2	2	3	1	6	2	1	0	3								
P3	1	4	2	4	1	3	1	2								
P4	3	6	6	5	0	4	3	2								

Assume that the total number of each system resource is  $\langle 12, 12, 8, 10 \rangle$  where  $R_i$  means the amount of resource  $P_i$

- a) What are the contents of the matrix NEED?
- b) Is the system a safe state? If yes, write a safe sequence.