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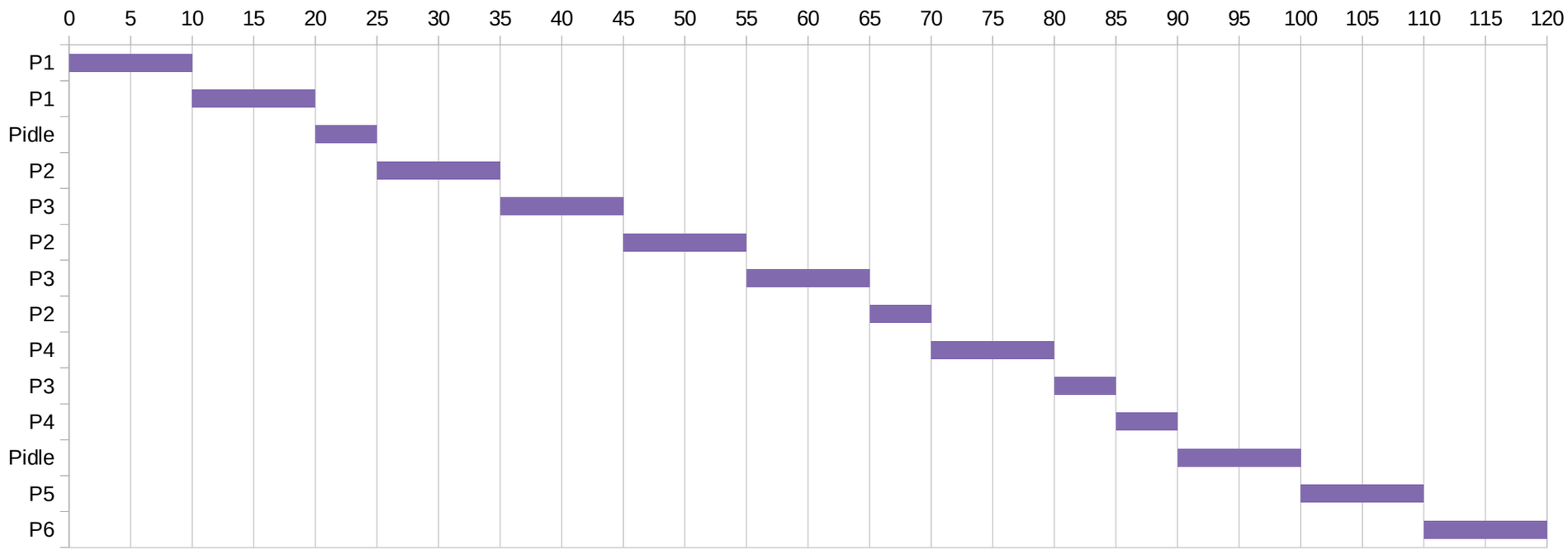
6.17) The following processes are being scheduled using a preemptive, round robin scheduling algorithm. Each process is assigned a numerical priority, with a higher number indicating a higher relative priority. In addition to the processes listed below, the system also has an idle ask (which consumes no CPU resources and is identified as Pidle). This task has priority 0 and is scheduled whenever the system has no other available processes to run. The length of a time quantum is 10 units. If a process is preempted by a higher-priority process, the preempted Process is placed at the end of the queue.

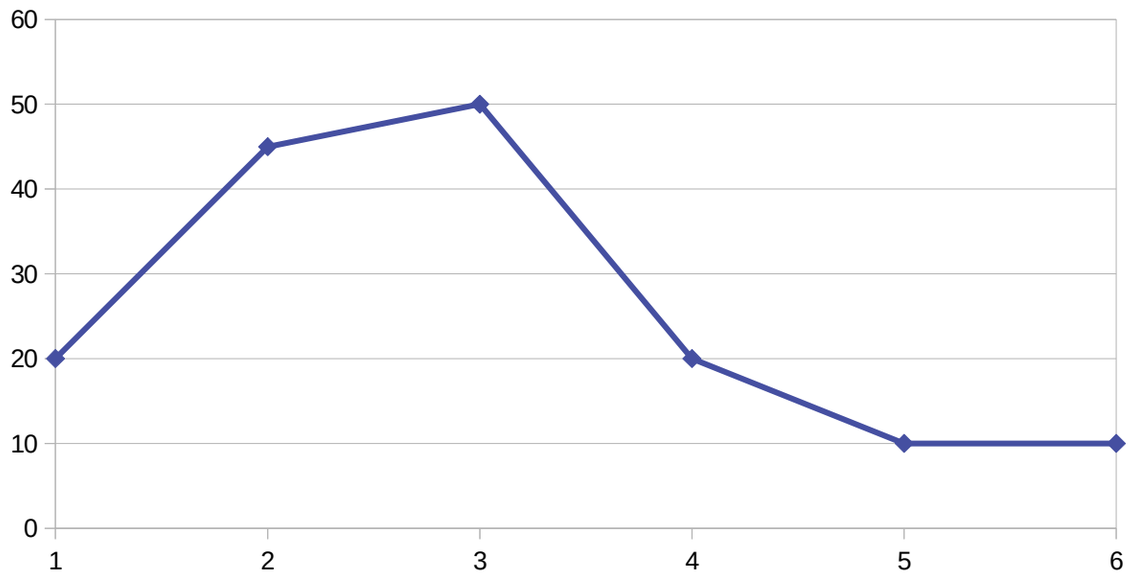
Thread	Priority	Burst	Arrival
P1	40	20	0
P2	30	25	25
P3	30	25	30
P4	35	15	60
P5	5	10	100
P6	10	10	105

a) Show the scheduling order of the processes using a Gantt chart.



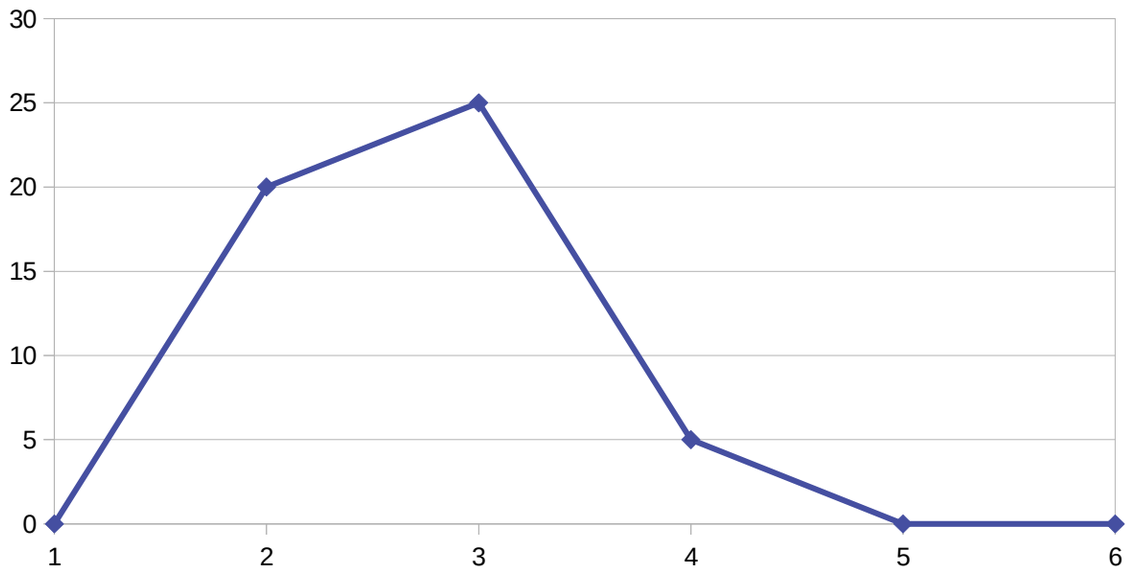
b) What is the turnaround time for each process?

Turnaround time	
P1	20
P2	45
P3	50
P4	20
P5	10
P6	10



c) What is the waiting time for each process?

Waiting time	
P1	0
P2	20
P3	25
P4	5
P5	0
P6	0



d) What is the CPU utilization rate?

Utilization rate	
P1	100.00%
P2	55.56%
P3	50.00%
P4	75.00%
P5	100.00%
P6	100.00%

CPU	80.09%