

Score: \_\_\_\_\_

Name: \_\_\_\_\_

**ECE 3055 Quiz - November 19, 2003**  
CPU Scheduling

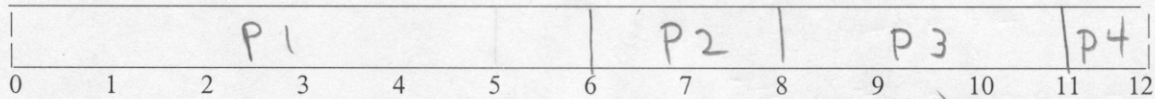
The following processes arrive for execution at the times indicated. Use preemptive scheduling for SRTF and RR. Base all decisions on the information you have at the time the decision is made. At arrival time, the burst execution time is known. For RR, assume a newly arrived process is in the ready queue just prior to its arrival time (i.e. it is in the ready queue just before a running process is stopped and added to tail of the ready queue at a time slice.)

| Process | Arrival Time | CPU Burst or Execution Time |
|---------|--------------|-----------------------------|
| P1      | 0.0ms        | 6ms                         |
| P2      | 2.0ms        | 2ms                         |
| P3      | 3.0ms        | 3ms                         |
| P4      | 4.0ms        | 1ms                         |

$$TT = (6+6+8+8)/4 = 7$$

$$WT = (0+4+5+7)/4 = 4$$

Draw a Gantt chart using FCFS:

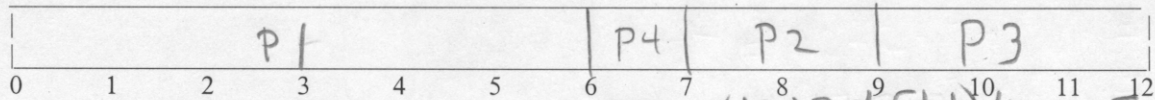


$$TT = (6+7+9+3)/4 = 6.25$$

$$WT = (0+5+6+2)/4 = 3.25$$

Draw a Gantt chart using SJF (no preemption):

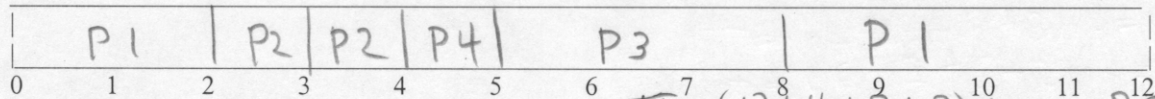
0.5 each



$$TT = (12+2+5+1)/4 = 5$$

$$WT = (6+0+2+0)/4 = 2$$

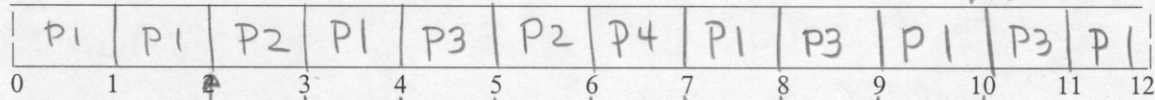
Draw a Gantt chart using SRTF:



$$TT = (12+4+8+3)/4 = 6.75$$

$$WT = (6+2+5+2)/4 = 3.75$$

Draw a Gantt chart using RR with time slice = 1ms:



Fill in the table below:

|                        | Average Turnaround Time | Average Wait Time |
|------------------------|-------------------------|-------------------|
| FCFS                   | 7                       | 4                 |
| SJF<br>(no preemption) | 6.25                    | 3.25              |
| SRTF<br>(preemption)   | 5                       | 2                 |
| RR                     | 6.75                    | 3.75              |

Ready Queue →

1pt. each blank