Score:_____   Name:_____

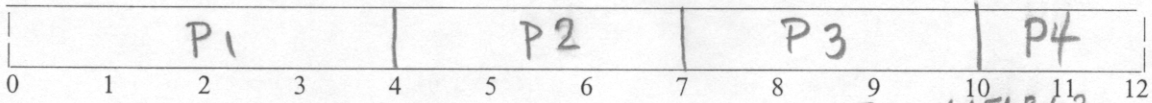**ECE 3055 Quiz – April 7, 2004**
CPU Scheduling

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	4ms
P2	2.0ms	3ms
P3	4.0ms	3ms
P4	6.0ms	2ms

Draw a Gantt chart using FCFS:

$$TT = \frac{4+5+6+6}{4} = 5.25$$

$$WT = \frac{0+2+3+4}{4} = 2.25$$

P1	P2	P3	P4

0   1   2   3   4   5   6   7   8   9   10   11   12

Draw a Gantt chart using SJF (no preemption):

$$TT = \frac{4+5+8+3}{4} = 5$$

$$WT = \frac{0+2+1+5}{4} = 2$$

P1	P2	P4	P3

0   1   2   3   4   5   6   7   8   9   10   11   12
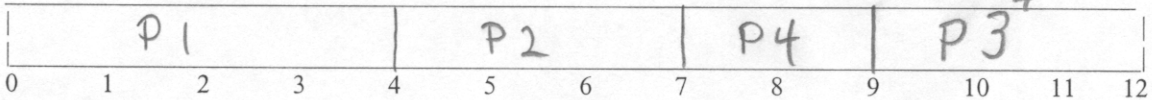
Draw a Gantt chart using SRTF:

same as above

P1	P1	P2	P2	P4	P3

0   1   2   3   4   5   6   7   8   9   10   11   12
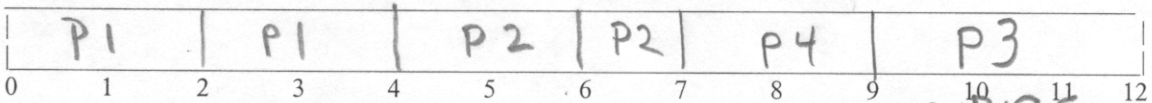
$$TT = \frac{6+7+8+5}{4} = 6.2$$

Draw a Gantt chart using RR with time slice = 2ms:

P1	P2	P1	P3	P2	P4	P3

0   1   2   3   4   5   6   7   8   9   10   11   12

Ready Queue

P2,P1   P1,P3,P2   P3,P2,P4   P2,P4,P3   P4,P3   P3
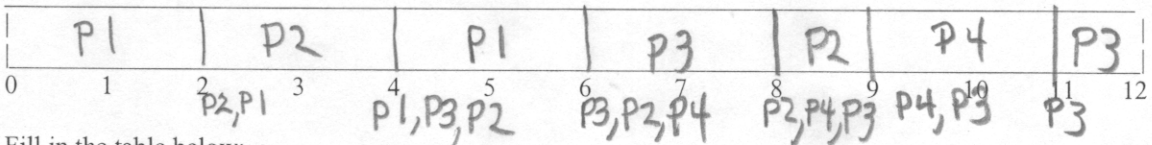
$$WT = \frac{2+4+5+3}{4} = 3.5$$

Fill in the table below:

	Average Turnaround Time	Average Wait Time
FCFS	5.25	2.25
SJF (*no preemption*)	5	2
SRTF (*preemption*)	5	2
RR	6.5	3.5