

## CPU Scheduling Exercises

### Problem 2

### Solutions

Process	Burst	Priority	Arrival Time
P <sub>1</sub>	8	4	0
P <sub>2</sub>	6	1	2
P <sub>3</sub>	1	2	2
P <sub>4</sub>	9	2	1
P <sub>5</sub>	3	3	3

First Come First Served

0	8	17	23	24	27
P <sub>1</sub>	P <sub>4</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>5</sub>	

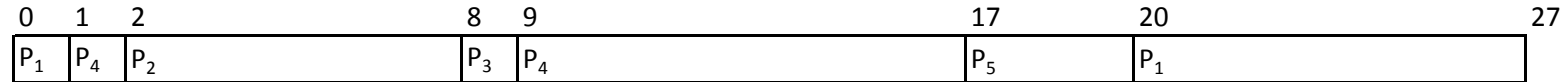
Avg. Wait =  $0+8-1+17-2+23-2+24-3 = 0+7+15+21+21=64/5 = 12.8$  AVG TAT =  $8+17-1+23-2+24-2+27-3 = 8+16+21+22+24=91/5=18.2$

Non-Preemptive Priority

0	8	14	15	24	27
P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>4</sub>	P <sub>5</sub>	

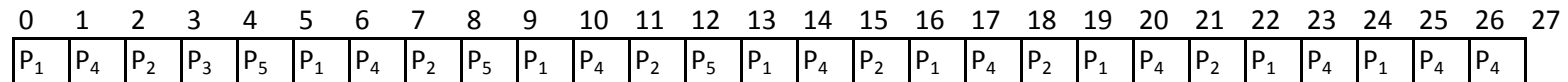
Avg. Wait =  $8-2+14-2+15-1+24-3 = 6+12+14+21 = 53/5=10.6\text{ms}$  AVG TAT =  $8+14-2+15-2+24-1+27-3 = 8+12+13+23+24=80/5=16\text{ms}$

### Preemptive Priority



Avg. Wait Time =  $0+20-1+2-2+8-2+9-2+17-3 = 0+19+0+6+7+14 = 46/5=9.2\text{ms}$  AVG TAT =  $27+8-2+9-2+16+20-3 = 73/5 = 14.6\text{ms}$

### Round Robin (1ms Quantum)



Wait Time P<sub>1</sub> =  $0+4+3+3+2+2+1+1 = 16$

Wait Time P<sub>2</sub> =  $0+4+3+3+2+2+2+1 = 17$

Wait Time P<sub>3</sub> = 1

Wait Time P<sub>4</sub> =  $4+4+3+2+3+2+1 = 19$

Wait Time P<sub>5</sub> =  $1+3+3 = 7$

Avg Wait Time =  $60/5 = 12\text{ms}$

Avg TAT =  $25+21+2+26+10 = 84/5 = 16.8$

Algorithm	Avg Wait	Avg TAT
FCFS	12.2	18.2
NonP Priority	10.6	16
Prem Priority	9.6	14.6
RR	2	6.8

Preemptive Priority has shortest wait and shortest TAT