1. Turnaround Times
    a. (8ms + 10ms + 10ms)/3 = 9.33ms
    b. (8ms + 6ms + 11)/3 = 8.33ms
2. To make the computer feel responsive to the user. Any small delay would result in a noticeable freeze.
3. Gantt Charts
    a.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
P1	P1	P1	P1	P1	P1	P1	P1	P2	P2	P2	P3	P3	P4	P5	P5	P5	P5	P5	P5

    Turnaround time: (8ms + 11ms + 13ms + 14ms + 20ms)/5 = 13.2ms
    Wait time: (0ms + 8ms + 11ms + 13ms + 14ms)/5 = 9.2ms
    b.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
P4	P3	P3	P2	P2	P2	P5	P5	P5	P5	P5	P5	P1	P1	P1	P1	P1	P1	P1	P1

    Turnaround time: (20ms + 6ms + 3ms + 1ms + 12ms)/5 = 8.4ms
    Wait time: (12ms + 3ms + 1ms + 0ms + 6ms)/5 = 4.4ms
    c.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
P2	P2	P2	P3	P3	P5	P5	P5	P5	P5	P5	P1	P1	P1	P1	P1	P1	P1	P1	P4

    Turnaround time: (19ms + 3ms + 5ms + 20ms + 11ms)/5 = 11.6ms
    Wait time: (11ms + 0ms + 3ms + 19ms + 5ms)/5 = 7.6ms
    d.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
P1					P1				P1			P1		P1		P1		P1	P1
	P2					P2				P2									
		P3					P3												
			P4																
				P5				P5			P5		P5		P5		P5		

    Turnaround time: (20ms + 11ms + 8ms + 4ms + 18ms)/5 = 12.2ms
    Wait time: (12ms + 8ms + 6ms + 3ms + 12ms)/5 = 8.2ms
    e. SJF has the shortest average wait time for this set of processes.
4.

1	2	3	4	5	6	7	8	9	10	11	12	13
P1		P1				P1	P1	P1				
	P2											
			P3									
				P4	P4							
									P5	P5	P5	P5

    Turnaround time: (9ms + 1ms + 1ms + 3ms + 7ms)/5 = 4.2ms
    Wait time: (4ms + 0ms + 0ms + 1ms + 3ms)/5 = 1.6ms
5. Priority time can result in starvation if a low priority process never gets to run because there are always higher priority processes.
6. RR
    a. The process with 2 pointers would run twice as many times.
    b. An advantage is that more pointers could be added to give certain processes priority, allowing them more time to run. A disadvantage is that there would still be lost time in

the overhead to check the ready queue and run the same process that was already running.

c. I would just have priority attached to each process in the ready queue that would dynamically change the quantum.