

PMR5230 - Sistemas Computacionais para Automação

3a. Lista de Exercícios - Versão 2017

- [Ex. 1] Defina o que são Sistemas de Tempo Real e quais são suas características principais.
- [Ex. 2] Definir: hard real time system, soft real time system e firm real time system.
- [Ex. 3] Descreva em linhas gerais como pode ser feito um programa que executa um sistema de controle com tempo de amostragem igual a T .
- [Ex. 4] Three logical processes P , Q e S have the following characteristics. P : period 3, required execution time 1; Q : period 6, required execution time 2; S : period 18, required execution time 5. Show how these processes can be scheduled using the rate monotonic scheduling algorithm. Show how a cyclic executive could be constructed to implement the three logical processes.
- [Ex. 5] Is the process set in the table below schedulable using the simple utilization based test? Is the process set schedulable using the response time analysis?

Process	Period	Execution Time
a	50	10
b	40	10
c	30	9

- [Ex. 6] The process set given in the table below is not schedulable using the simple utilization based test but does meet all deadlines when scheduled using fixed priorities. explain why.

Process	Period	Execution Time
a	75	35
b	40	10
c	20	5

- [Ex. 7] Explain the priority inversion phenomena.