

CSE 40373: Multimedia Systems

Home work assignment #5 (Due 03/27/2009)

Open book, open notes, individual effort. Google searches are okay - always cite your source.
Brevity is encouraged,

1) (20 pts) Consider the following non-preemptive RT tasks and their characteristics

- 1) T1: $p_1 = 50\text{ms}$, $e_1 = 10\text{ms}$
- 2) T2: $p_2 = 100\text{ms}$, $e_2 = 30\text{ms}$
- 3) T3: $p_3 = 200\text{ms}$, $e_3 = 50\text{ms}$
- 4) T4: $p_4 = 100\text{ms}$, $e_4 = 35\text{ms}$

a) Are these tasks schedulable via RMS? If yes, what is the feasible schedule?

b) Are these tasks schedulable via EDF? If yes, what is the feasible schedule?

2) (10 pts) Tasks in soft real time systems can be categorized into the following CPU service classes: PCPT, PVPT, ACPU and Events. Explain the rationale behind this classification (or, why is using a single class that specifies the period and processing time alone insufficient in soft real time systems?)

3) (10 pts) Assume a system that uses two network interfaces. In scenario 1, one interface has low latency and one has high latency. In scenario 2, both interfaces have equal latencies that are the average of the latencies in scenario 1. The video stream requires enough bandwidth to require the use of both the interfaces. Given a choice, which scenario would you prefer? Why?