EE 4770 **Homework 4** **Due: 23 April 1999**

Problem 1: The tasks in the table below run on a system with a non-task preemptive OS with a quantum of 20 ms. Task A does IO after each 10 ms of computation, the IO takes 7 ms to complete. Show CPU activity and task states until the last task finishes.

Task Name	Priority	Arrival Time	Run Time	Activity
A	3	10 ms	50 ms	IO each 10 ms takes 7 ms.
B	2	20 ms	70 ms	
C	1	0	15 ms	

Problem 2: Information about events and their handlers appear in the table below. Under the one-shot assumption, find the worst case latency and response time for each event. Show the event sequences used.

Event Name	Strong Priority	Weak Priority	Run Time
A	2	3	$2\,\mu$s
B	2	2	$5\,\mu$s
C	2	1	$10\,\mu$s
D	3	1	$6\,\mu$s
E	1	1	$11\,\mu$s

Problem 3: Information about events and their handlers appear in the table below. For each event find: load, load set, loading factor, loaded duration, worst-case latency, and worst-case response time. Show the event sequences used. Find the total load on the system.

Event Name	Strong Priority	Weak Priority	Run Time	Occurrence
A	4	2	$5\,\mu$s	Periodic, $t_{\rm b} = 10\,\mu$s.
B	4	1	$1\,\mu$s	Periodic, $t_{\rm b} = 3\,\mu$s.
C	3	1	$2.5\,\mu$s	Periodic, $t_{\rm b} = 50\,\mu$s.
D	2	1	7 ms	Periodic, $t_{\rm b} = 75$ ms.
E	1	1	8 ms	500 ms after last response.