

- Given two processes P1 and P2, and a shared variable S, show how two arithmetic statements can produce erroneous results if no protection for the critical section is used.
- Given two processes, each of which have a critical section with respect to a variable Q, show how to protect these critical sections using *flag* and *turn* variables, **TestAndSet** instructions and semaphores.
- Using two semaphores S1 and S2, show how a deadlock can occur between two processes, even if the semaphores are used correctly.
- List the five conditions necessary for deadlock.
- Is the following system safe?

	Has				Max				Free			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	3	0	1	1	1	1	0	0	1	0	2	0
P1	0	1	0	0	0	1	1	2				
P2	1	1	1	0	3	1	0	0				
P3	1	1	0	1	0	0	1	0				
P4	0	0	0	0	2	1	1	0				

- Given a decimal computer with a page size of 1000, and the following page table, translate the following list of addresses.

Page Table
14
32
19
51
66
32
2

Addresses: 121, 30, 1048, 3065, 7222, 3999, 4011, 5000, 6191, 1441, 2239, 8919, 6119, 2713, 1492, 2321, 5280, 6000, 6999.