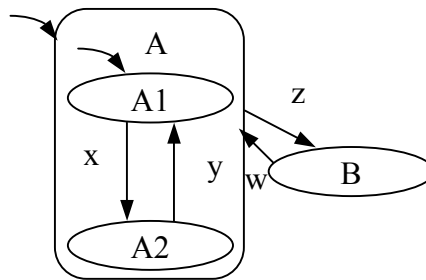


UCR CS122A, Fall 2002  
Embedded System Design  
Prof. Harry Hsieh  
Homework #4

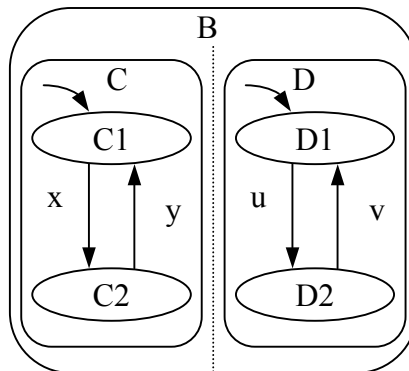
Read “Embedded System Design”, chapters 7 & 8

Due Date: Thursday, Oct 24, at the beginning of the class  
No late homework will be accepted.

1. (10 points) ESD Book Problem 7-3 (you will have to refer to 7.2 to do part b)
2. (10 points) ESD Book Problem 7-4 (for part c, do 4 bits for the fractional part)
3. (10 points) ESD Book Problem 7-7
4. (10 points) ESD Book Problem 8-1
5. (10 points) Describe the relationship between computational model, language, implementation, and application.
6. (10 points)
  - a. Convert the following HCFSM into FSM



- b. Convert the following HCFSM into FSM



7. (10 points) Circle all statements consistent with Rate Monotonic Scheduling
- Each task has fixed priority
  - Each task has dynamic priority
  - Each task is periodic, with fixed period
  - All tasks are periodic, with same period
  - Tasks can communicate with each other
  - Tasks cannot communicate with each other
  - Each task has constant run time
  - Each task has known run time
  - Each task has a run time upper bound
8. (10 points)
- What is the rate monotonic priority assignment (with 1 being the lowest priority) for the following set of processes?

Process	Period	Priority
A	25 ms	
B	60 ms	
C	20 ms	
D	150 ms	
E	75 ms	
F	50 ms	

- If each of the above processes has a run time of 4ms, are they schedulable?
9. (10 points) ESD Book Problem 8-9
10. (10 points) Write a minimum buffer usage single appearance schedule for the following synchronous dataflow graph:

