

Fall 2012

UC Berkeley, EECS Department

Ion Stoica

Quiz 1: Synchronization

CS162, September 17, 2012

Your Name:

SID AND 162 Login:

Note: The answers are in RED.

1. What are the main disadvantages when using interrupts to implement locks (i.e., use “disable interrupt” to implement `Acquire()` and “enable interrupt” to implement `Release()`)? Note that multiple choices can be true.

- a. Causes busy-waiting
- b. **Can lead to missing important I/O events**

2. With Mesa monitors it is *necessary* to check again the condition on which the thread was waiting after being waken up (e.g., use `while(queue.isEmpty)` instead of `if(queue.isEmpty())`)?

TRUE

FALSE

3. With monitors, a thread *cannot* wait in the critical section.

TRUE

FALSE

4. Changing the order of `emptySlots.P()` and `mutex.P()` in the Producer’s code can lead to deadlock.

```
Producer(item) {  
    emptySlots.P();  
    mutex.P();  
    Enqueue(item);  
    mutex.V();  
    fullSlots.V();  
}
```

```
Consumer() {  
    fullSlots.P();  
    mutex.P();  
    item = Dequeue();  
    mutex.V();  
    emptySlots.V();  
    return item;  
}
```

TRUE

FALSE