Question 3 (revised):

For this question you will need to implement a 3-way synchronizer, which keeps a sequence counter and dispatches threads in sets of three. It has a single method:

```c
int sync3(void)
```

which behaves as follows:

- if a thread calls `sync3()` and 0 or 1 threads are waiting, it waits.
- if a thread calls `sync3()` and 2 threads are waiting:
  - the sequence counter is incremented
  - all three threads return from their `sync3()` calls
  - the return value for all three threads is the new value of the sequence counter

3a) implement the 3-way synchronizer using semaphores

3b) implement it using a monitor

For each provide a pseudo-code implementation - i.e. it doesn't need to be executable code, but it should be as unambiguous (although hopefully shorter and easier to understand) as a C or Java implementation.