Assignment 9

The due date for submitting this assignment has passed.

1) The atomic fetch-and-set, a, lvalue is unconditionaly sets the memory location a to 1 and fetches the old value of a by trying without allowing any intervening access to the memory location A, consider the following implementation of P and V functions on a binary semaphore.

```c
void p (binary_semaphore *s) {
    s->wait ();
}

void v (binary_semaphore *s) {
    s->signal ();
}
```

The implementation may not work if context switching is disabled in.

Instead of using fetch and set, a pair of normal load and stores can be used.

The implementation of V is as wrong.

The code does not implement a binary semaphore.

No, the answer is incorrect.
Score: 0

Accepted Answers:
The implementation may not work if context switching is disabled in.

2) The aim of this exercise is to help students understand the semantics of binary semaphore. Let S be a binary semaphore variable, therefore initially, S=0. What will be the value of S when following operations are performed in order:

```c
a, b, c: int
p(a);
p(b);
v(c);
```

Where P and V stands for wait and signal respectively and numeral preceding specify the number of processes executing it.

No, the answer is incorrect.
Score: 0

Accepted Answers:

3) What are spinlocks?

CPU cycle stealing, locks over critical sections of programs.

Locks that avoid time stashing in context switches.

Locks that work better on multiprocessor systems.

All of the mentioned.

No, the answer is incorrect.
Score: 0

Accepted Answers:

All of the mentioned.

4) Which of the following is true about the critical section?

- For the requirement of single instruction critical section it is efficient to implement using atomics if possible.
- For the requirement of small size critical section it is efficient to use skulkins.
- For the requirement of large size critical section it is efficient to use blocking based locking implementation.
- Unix process is always better to use spinning based locking implementation.

No, the answer is incorrect.
Score: 0

Accepted Answers:

For the requirement of single instruction critical section it is efficient to implement using atomics if possible.

For the requirement of small size critical section it is efficient to use skulkins.

For the requirement of large size critical section it is efficient to use blocking based locking implementation.

Unix process is always better to use spinning based locking implementation.

5) Which of the following conditions is required for deadlocks to be possible?

- A process may hold allocated resources while awaiting assignment of other resources.
- No resource can be feasibly removed from a process holding it.
- Mutual exclusion.
- All of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:

All of the above.

6) The monitor construct ensures that

- Only one process can be active at a time within the monitor.
- No process can be active at a time within the monitor (being greater than 1).
- The queue has only one process in it at a time.
- All of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:

Only one process can be active at a time within the monitor.

7) To enable a process to wait within the monitor.

- A condition variable must be declared as condition.
- Condition variable must be used as boolean objects.
- Semaphores must be used.
- All of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:

A condition variable must be declared as condition.

8) The answer is incorrect.
Score: 0

Accepted Answers:

9) The answer is incorrect.
Score: 0

Accepted Answers: