1. Which of the following about semaphores is not correct?

To obtain a shared resource, a process needs to do the following:

A. Test the semaphore that controls the resource.

B. If the value of the semaphore is positive, the process can use the resource.

C. In this case, the process decrements the semaphore value by 1, indicating that it has used one unit of the resource.

D. Otherwise, if the value of the semaphore is 0, the process goes to sleep until the semaphore value is smaller than 0.

E. When the process wakes up, it returns to step 1.

Answer D) the process goes to sleep until the semaphore value is greater than 0. APUE 15.8 page 565.

2. Which of the following about semaphores is not correct?

A. When a process is done with a shared resource that is controlled by a semaphore, the semaphore value is decremented by 1.

B. If any other processes are asleep, waiting for the semaphore, they are awakened.

C. To implement semaphores correctly, the test of a semaphore’s value and the decrementing of this value must be an atomic operation.

D. For this reason, semaphores are normally implemented inside the kernel.

E. A common form of semaphore is called a binary semaphore.

Answer A) When a process is done with a shared resource that is controlled by a semaphore, the semaphore value is incremented by 1. APUE 15.8 page 566

3. Which of the following about XSI semaphores is not correct?

A. A semaphore is not simply a single non-negative value. Instead, we have to define a semaphore as a set of one or more semaphore values. When we create a semaphore, we specify the number of values in the set.

B. The creation of a semaphore (semget) depends on its initialization (semctl).

C. This is a fatal flaw, since we cannot atomically create a new semaphore set and initialize all the values in the set.

D. Since all forms of XSI IPC remain in existence even when no process is using them, we have to worry about a program that terminates without releasing the semaphores it has been allocated.

E. The undo feature is supposed to handle this.

Answer B) The creation of a semaphore (semget) is independent of its initialization (semctl). APUE 15.8 page 566

4. What is the number of semaphores is the set?

A. sems

B. nsems

C. nosems

D. ns

E. numsems

Answer B) The number of semaphores in the set is nsems. APUE 15.8 page 567

5. What does GETVAL do?

A. Return the value of semval for the member *semnum*.

B. Return the value of sempid for the member *semnum*

C. Return the value of semncnt for the member *semnum*.

D. Return the value of semzcnt for the member *semnum*.

E. Fetch all the semaphore values in the set. These values are stored in  
the array pointed to by *arg.array*.

Answer A)

|  |  |
| --- | --- |
| GETVAL | Return the value of semval for the member *semnum*. |

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