CS2006 – Operating System

Fall 2023

ID: _____   Name: _____

Quiz # 2   Marks: 10

Date: _____

1. We have seen that Hardware Test and Set provides better solution than other software solutions for Race Conditions. Why is this so?

   Hardware Test and set consist of atomic instructions implemented on hardware level. The guaranteed atomic execution (executing all the instructions of the set together) assures that Race condition will be avoided, and hardware implementation assures the fast execution of these atomic instructions.

2. Explain Semaphores and mention its types. What does the initial value of a Semaphore show?

   Semaphore are simple variables whose value cannot be negative. We can set its value initially, and then are allowed to either increment or decrement it by exactly '1'. We can have either a Binary semaphore, or a Counting semaphore (Two Types). The initial value of a semaphore shows the number of threads that may enter a critical section at any given time.