Operating Systems–II: CS3523
Spring 2022
Theory Assignment 1: Chapter 6, 7 from the book

Submission Date: 21/02/2022, 9:00 PM

1. Consider the atomic ‘increment’ function discussed in the book (page 270 of the pdf) using hardware instruction ‘compare_and_swap’. As of now, there is no guarantee that a thread invokind this function will terminate. So, can you develop an ‘atomic’ increment function that will eventually terminate?

2. In the class we discussed the solution to the reader-writers problem using semaphores. We saw that this solution can cause the writer threads to starve. Please develop an alternative solution in which neither the reader nor the writers will starve. For this you can assume that the underlying semaphore queue is fair.

3. Exercise 6.11 from the book.

4. Exercise 6.12 from the book.