

Spring 2023 - CS3523: Operating Systems 2
Theory Assignment 2: Concurrency & Starvation Freedom
Deadline: 2nd March 2023, 1:00 pm (Before the class)

Q1 **(5 points)**. Exercise 6.8 on page EX-17 of the book (page 346 of the pdf).

Q2 **(5 points)**. Exercise 6.11 on page EX-19 of the book (page 366 of the pdf).

Q3 **(5 points)**. Exercise 6.23 on page EX-23 of the book (page 370 of the pdf).

Starvation Freedom Problems

Q4 **(7 points)**. In the class we discussed a solution for solving the readers-writers problem. But it can cause the writer threads to starve. Can you develop a solution in which no threads starve.

Q5 **(5 points)**. In the class we discussed about atomic increment operation implemented using CAS instructions. But that implementation does not ensure guaranteed termination of each method, i.e. *starvation-freedom*. Can you modify this method so that the modification ensures that every thread invoking increment method will eventually terminate.