Operating Systems Lab
Time allowed: 2 Hours
Final-term Exam S21
Total Marks: 60

Instructions

- Every program must be compiled with –Wall and – Werror options.
- Understanding the problem is part of the problem.

Problem 1: Write a program that takes input command using command line arguments and pass it to exec to perform the following. (20)

Example:

./a.out ls –l

Problem 2: Write a program that creates M worker threads to divide elements of one M x N sized matrix by corresponding elements of the second M x N sized matrix and display the resultant matrix. The program is passed values of M & N through command-line arguments. The program then initializes the values of matrices using the rand() function. (20)

Example:

./a.out 4 5

Problem 3: To vaccinate their students and respectable teachers, UCP is arranging a Covid-19 vaccination camp at the UCP. Management allowed one vaccination area for both teachers and students to get their covid-19 shot. Management agreed, provided that the following synchronization constraints can be maintained:

- There cannot be students and teachers in the vaccination area at the same time.
- There should never be more than three people in the vaccination area.

You are supposed to write a synchronization solution for this problem and implement it in C language. (20)