PRACTICAL QUESTIONS (OS: CSE3003)

Note: Do execute all the programs, upload both programs and outputs

A) Study basic UNIX commands:

cat, cd, cp, chmod, df, less, ls, mkdir, more, mv, pwd, rmdir, rm, man, uname, who, ps, vi, cal, date, echo, bc, grep

B) USE of FORK():

Implement the C program in which main program accepts an integer array. Main program uses the fork system call to create a new process called a child process. Parent process sorts an integer array and passes the sorted array to child process through the command line arguments of execve system call. The child process uses execve system call to load new program that uses this sorted array for performing the binary search to search the particular item in the array.

C) Inter process Communication – Semaphore

1. Implement the solution for Bounded Buffer (Producer-Consumer) problem using inter process communication technique – Semaphores.

2. Implement the solution for Readers-Writers problem using inter process communication technique – Semaphores.

3. Implement the solution for Dining-Philosopher problem using inter process communication technique – Semaphores.

IMPLEMENTATION DETAILS:

(i) For programming this problem, use C-programming language for implementing the synchronization problem using semaphores.

(ii) Our main focus is to obtain three conditions of
   (a) mutual exclusion
   (b) progress
   (c) bounded wait

(iii) Implement semaphore concept considering above mentioned problem.

OUTPUT: Synchronization of the problem satisfying conditions of mutual exclusion, progress and bounded wait.