National University of Computer and Emerging Sciences



**Laboratory Manual**

***(Operating Systems)***

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| Semester | Spring 2018 |

Department of Computer Science

FAST-NU, Lahore

**Question # 0**

See power point labs

**Question # 1**

Write a writer thread that writes exactly N characters into a shared memory buffer.

Write a reader thread that reads exactly N characters into a shared memory buffer.

Write a main program to activate these threads. (Use 2 semaphores, careful while assigning them values).

Char buff[100]

N = 10

Thread 1 Thread 2

cin >> buff // 12345678901234

output will be 1234567890

….. …..

**Question # 2**

There are exactly 3 threads generate string a, b and c in an arbitrary order. In an absence of any synchronization mechanism there will be no order in generation of a, b and c. In the form of regular expression the string (a | b | c)\* {\* means many times a character an occur, | means or, so different combinations can be aaaaaaa… , bbbbbbbbbbb… , ccccc… }. Synchronize threads using semaphore in such a way that your printed string will be (cba)\* {\* means many times cba can occur, so different combinations will be cbacbacbacb….}.

Note you are not allowed to add or delete any cout statement

|  |  |  |
| --- | --- | --- |
| //thread 1  While(1)  {    Cout << ‘a’;  } | //thread 1  While(1)  {  Cout << ‘b’;  } | //thread 1  While(1)  {  Cout << ‘c’;  } |