



NATIONAL UNIVERSITY
OF COMPUTER & EMERGING SCIENCES

CS2006 – Operating System

Fall 2023

ID: _____

Name: _____

Quiz # 2

Marks: 10

Date: _____

1. We have to come up with a solution in order to avoid Race Condition and get correct result. Briefly describe the conditions for such a design.

(The answer will be considered correct if at least any 3 conditions are mentioned)

- Mutual exclusion: No threads may be inside the same critical sections simultaneously
- Progress: The selection of a thread for executing a critical section cannot be delayed indefinitely
 - If one thread wants to enter, it should be permitted to enter.
 - If multiple threads want to enter, exactly one should be selected.
- Bounded waiting: No thread should wait forever to enter a critical section
- No thread running outside its critical section may block others
- A good solution will make no assumptions on:
 - No assumptions on # processors
 - No assumption on # threads/processes
 - Relative speed of each thread

2. What is the difference between Software Test & Set and Hardware Test & Set?

Software Test and Set may still lead to Race condition if the execution is preempted. Hardware Test and Set instruction is Atomic, hence cannot be preempted.