Quiz#4

21/04/2025 Total Marks: 10 Time: 30 minutes

그 내 경에 가게 있을 중심 수많이 가지 않는데 그 없는 것이 없다.	i intro-continuatori,	
그 그들이의 어떻게 하게 먹는데 보이트를 가는 것이 말을 하게 가는 하는다.	시 소설이 가지 하는 시 등 사람이 살아 없다는 중심에 나가지 않는다. 나는	마스타이 그 얼마나 마상은 하셨다면서 나가 가는 것이다.
Student id:	医维氏的 医伊斯勒姆斯 铝镍铁矿	Section:
A De Mar Actività de Salta Talva de Labora de Salta de Labora de L	그들은 이 경우는 점속하다 석화스로 경기되었다.	
Question 1	시작한 동안 하시네요 지수 하는 말을 맞았다면 점	5 marks

You are developing a multi-user digital library system. In this system:

Users can view and browse multiple books at once, which means they can read books concurrently without any issues.

Authors update the content of the books. While an author is updating a book, no one else should be allowed to view or modify that book.

Authors need exclusive access to the books when making changes to them. While an author is working on a book, it cannot be accessed by other authors or users:

Multiple users can read the same book simultaneously, but no user or author should access or read a book if an author is currently updating it

Given this scenario, identify the classical synchronization problem that best fits the situation. Then, write the pseudocode to manage concurrent access to the books using semaphores or mutexes.

Question 2: 3 marks

Use semaphores only to synchronize two threads so that:

- Thread A prints "Hello"
- Thread B prints "World"

Ensure "Hello" is always printed before "World". Write the pseudocode including semaphore initialization and thread actions.

Question:

In the context of process synchronization, answer the following precisely in one line each (no code required):

What is busy waiting?

What is one major drawback of busy waiting?

Name and briefly describe one alternative synchronization mechanism that avoids busy waiting: Provide a one-line example where busy waiting would be efficient: