



ASSIGNMENT NO 1- FALL 2024

Course Title:	Operating System			Course Code:	CSC322	Credit Hours:	3(2,1)					
Course	Engr. Ahmad Mudassir			Program	BCE							
Semester:	5 th	Batch:	FA22-BCE	Section:		Date:	13 th October 2024					
Deadline	15 th October 2024			Maximum Marks:	20							
Student's Name:				Reg. No.	CUI/	/LHR						
Important Instructions / Guidelines:												
<ul style="list-style-type: none">Any copied assignment will be marked zero												

Question No 1.

Multiple jobs can run in parallel and finish faster than if they had run sequentially. Suppose that two jobs, each needing 20 minutes of CPU time, start simultaneously. Identify the time will the last one take to complete if they run sequentially. Identify the time taken if they run in parallel. Assume 50% I/O wait.

Question No 2

Consider a multi-programmed system with a degree of 6 (i.e., six programs in memory at the same time). Assume that each process spends 40% of its time waiting for I/O. Identify the CPU utilization.

Question No 3

Assume that you are trying to download a large 2-GB file from the Internet. The file is available from a set of mirror servers, each of which can deliver a subset of the file's bytes; assume that a given request specifies the starting and ending bytes of the file. Explain how you might use threads to improve the download time.

Question No 4

In this problem you are to compare reading a file using a single-threaded file server and a multithreaded server. It takes 12 msec to get a request for work, dispatch it, and do the rest of the necessary processing, assuming that the data needed are in the block cache. If a disk operation is needed, as is the case one-third of the time, an additional 75 msec is required, during which time the thread sleeps. Identify the number of requests/sec can the server handle if it is single threaded? If it is multithreaded?

Question No 5

In a multithreaded Web server if the only way to read from a file is the normal blocking **read** system call, compare and explain the reason whether user-level threads or kernel-level threads are being used for the Web server.

The End

Good Luck 😊