	Course name	Operating System Lab	Course Code	CL-2001
	Program	BS-SE	Semester	Fall 2024
	Duration	30 minutes	Total Marks	20
	Quiz	2	Weight	5
Student Name:			Roll#:	

You are tasked with designing a C/C++ program to simulate a traffic light system at a pedestrian crossing. The traffic light changes states (Red, Green, Yellow) in a specific sequence:

- **Red:** Lasts for 10 seconds.
- **Green:** Lasts for 15 seconds.
- **Yellow:** Lasts for 3 seconds.

The system should:

1. Use multithreading to simulate the traffic light changes independently of other processes.
2. Display the current state of the traffic light every second (e.g., "Traffic Light: Red - 10 seconds remaining").
3. Calculate and display the total time taken to complete 3 full cycles of the traffic light (Red -> Green -> Yellow).

Marks Allocation:

- Correct implementation of multithreading: **5 marks**
- Accurate simulation of state transitions: **5 marks**
- Displaying state and remaining time: **5 marks**
- Calculating total time: **5 marks**

Help Code

For C	For C++

#include <time.h>
 	
// Start time
clock_t start = clock();
 	
// Your program logic here
 	
// End time
clock_t end = clock();
 	
// Calculate elapsed time
double elapsed_time = (double)(end - start) / CLOCKS_PER_SEC;
printf("Elapsed Time: %.2f seconds\n", elapsed_time);
	#include <chrono>
	using namespace std;
	
	// Start time
	auto start = chrono::high_resolution_clock::now();
	
	// Your program logic here
	
	// End time
	auto end = chrono::high_resolution_clock::now();
	
	// Calculate elapsed time
	chrono::duration<double> elapsed_time = end - start;
	cout << "Elapsed Time: " << elapsed_time.count() << " seconds" << endl;