19. Write a C program to create two threads to access shared memory which is an integer in a synchronized fashion using semaphore. In the first thread print the doubled the integer data after reading from the shared memory. In the second thread, print the five times of the integer data after reading from the shared memory Program:

#include <stdio.h>

#include <stdlib.h>

#include <pthread.h> #include <semaphore.h> int shared\_data = 5; sem\_t semaphore; void\* thread1\_func(void\* arg) {

int data;

sem\_wait(&semaphore); data = shared\_data; data = data \* 2;

printf("Thread 1: Doubled data: %d\n", data);

sem\_post(&semaphore); pthread\_exit(NULL);

}

void\* thread2\_func(void\* arg) {

int data;

sem\_wait(&semaphore); data = shared\_data; data = data \* 5;

printf("Thread 2: Five times data: %d\n", data);

sem\_post(&semaphore); pthread\_exit(NULL);

} int main() {

pthread\_t thread1, thread2; sem\_init(&semaphore, 0, 1);

pthread\_create(&thread1, NULL, thread1\_func, NULL); pthread\_create(&thread2, NULL, thread2\_func, NULL); pthread\_join(thread1, NULL); pthread\_join(thread2, NULL); sem\_destroy(&semaphore);

} Output:

