

## **CMSC 132 Quiz 5 Worksheet**

The next quiz of the course will be on Monday, May 8 during your lab (discussion) session. The following list provides more information about the quiz:

- The quiz will be a written quiz (no computer).
- Closed book, closed notes quiz.
- Answers must be neat and legible. We recommend that you use pencil and eraser.

The following exercises cover the material to be included in this quiz. Solutions to these exercises will not be provided, but you are welcome to discuss your solutions with TAs and instructors during office hours.

### **Exercises**

1. What is a deadlock? How can you avoid it?
2. What is a data race? How can you avoid it?
3. How can multiple threads run simultaneously in a single-processor computer?
4. What are two ways to create threads?
5. What is a daemon thread?
6. Write a program called LineCounter that counts the lines in one or more files. The code will start a new thread for each file.
7. Implement a queue whose add and remove methods are synchronized.