Nepal College Of Information Technology
Balkumari, lalitpur
Operating System Assignment

Q.1 List five services provided by an operating system that are designed to make it more convenient for users to use the computer system. In what cases it would be impossible for user-level programs to provide these services? Explain.

Q.2 What are the advantages and disadvantages of using the same systemcall interface for manipulating both files and devices?

Q.3 Describe the actions taken by a kernel to context-switch between processes.
Q.4 Provide two programming examples in which multithreading doesnot provide better performance than a single-threaded solution.

Q.5 Describe the actions taken by a thread library to context switch between user-level threads.

Q.6 Under what circumstances does a multithreaded solution using multiple kernel threads provide better performance than a single-threaded solution on a single-processor system?

Q.7 Can a multithreaded solution using multiple user-level threads achieve better performance on a multiprocessor system than on a single-processor system?

Q.8Discuss how the following pairs of scheduling criteria conflict in certain settings.

a. CPUutilization and response time
b. Average turnaround time and maximum waiting time
c. I/Odevice utilization andCPUutilization

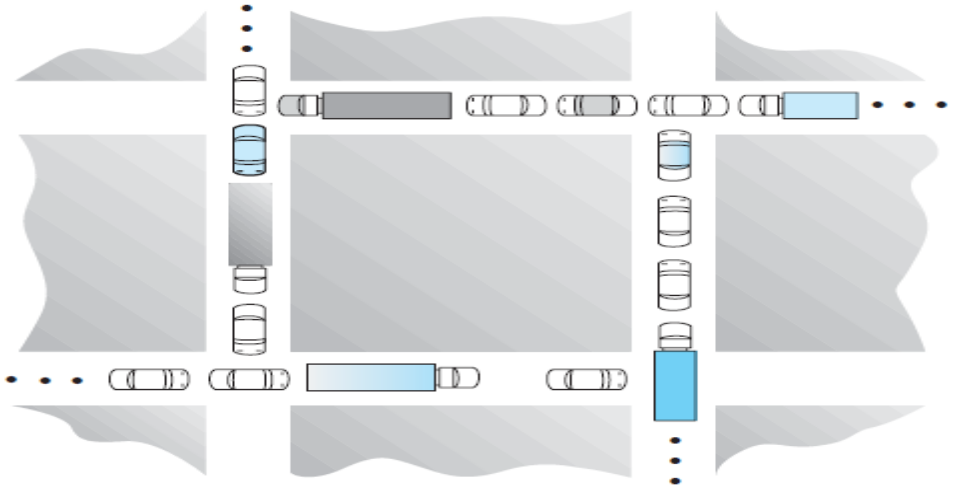
Q.9 What is the meaning of the termbusy waiting? What other kinds of waiting are there in an operating system? Can busy waiting be avoided altogether?Explain your answer.
Q.10 Consider the deadlock situation that could occur in the dining-philosophers problem when the philosophers obtain the chopsticks one at a time. Discuss how the four necessary conditions for deadlock indeed hold in this setting. Discuss how deadlocks could be avoided by eliminating any one of the four conditions.

Q.11 Under what circumstances would a user be better off using a timesharing system rather than a PC or single-user workstation?

Q.12 Consider the traffic deadlock depicted in Figure below.

a. Show that the four necessary conditions for deadlock indeed hold in this example.

b. State a simple rule for avoiding deadlocks in this system.



Q.13 In process creation, what are the possibilities in concerned (1) Parent execution (2) Address space of the new process (child)?