CURTIN UNIVERSITY
Discipline of Computing
School of Electrical Engineering, Computing and Mathematical Sciences

Worksheet 1

1. What are the three main purposes of an Operating System?

2. What is multiprogramming? What is the main advantage of multiprogramming?

3. What is time-sharing? What is the main advantage of time-shared system?

4. In a multiprogramming and time-sharing environment, several users share the system simultaneously. This situation can result in various security problems.

   a) What are the problems? (Name at least two problems)
   b) Can we ensure the same degree of security in time-shared machine as we have in a dedicated machine? Explain your answer.

5. What is the main difference between operating systems for mainframe computers and personal computers?

6. We have stressed the need for an OS to make efficient use of the computing hardware. When is it appropriate for the OS to forsake this principle and to 'waste' resources?

7. What is the purpose of interrupts? What are the differences between a trap and an interrupt?

8. What is a privileged instruction? Which of the following instructions should be privileged?
   a. Set value of timer
   b. Read the clock
   c. Clear memory
   d. Turn-off interrupts
   e. Switch from user mode to monitor mode
   f. Modifying base and limit registers
   g. Issue a trap instruction
   h. Access I/O device
   i. Modify entries in device-status table.

9. What is the purpose of the command interpreter? Why is it usually separate from the

kernel? By what other names is it known?

10. What is the purpose of system calls? Describe three methods to pass parameters to the OS.

11. Give examples of Unix System Calls for each of the following system calls major categories:

- Process Control
- File Manipulation
- Device manipulation
- Information maintenance
- Communications