Homework　for Chapter　One & Two:

Total Score: 110; Part (I): 100, Part (II):10 Due Date: Oct.13, 2017

Regular --- Part (I): 100

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

a. What are two such problems?

1.Copying or Stealing other’s programs or data

Since the users of time- sharing environment shares the resources of system, include CPU time, memory and devices, when one user can gain control of other’s resource, he control other’s work on computer, gets imformation of other’s tasks. He can copy or delete other’s data.

2.Using system resources (CPU, memory, disk **space**, peripherals) with improper accounting

When some user can obtain privilege on system resources, he can consume lots of resources, other user’s right would be damaged, and their work would be halted.

b. Can we ensure the same degree of security in a time-shared machine as in a dedicated machine? Explain your answer.

No, it can not provide equal degree of security as a dedicated machine, unless there is a administrator who is quite fair. Without a administrator, users may gain control of the kernel, provide them a high priority account. So we need a fair administrator to maintain a secure system.

1.2 The issue of resource utilization shows up in different forms in different types of operating systems. List what resources must be managed carefully in the following settings:

a. Mainframe or minicomputer systems

CPU and memory, because Mainframe computers compute huge problem, it costs much resources. Minicomputers have limited resource, so it also need to do the best to distribute resources.

storage, network bandwidth.

b. Workstations connected to servers

memory and CPU resources. Workstations have its special jobs to do, so it needs fast hardware.

c. Handheld computers

Power consumption, Memory and CPU resources.

Power consumption is very important, it determines the weight, size and endurance of mobile.

1.3 Which network configuration—LAN or WAN—would best suit the following environments?

a. A campus student union

LAN.

b. Several campus locations across a statewide university system

WAN.

c. A neighborhood

1.4 How are network computers different from traditional personal computers? Describe some usage scenarios in which it is advantageous to use network computers

2.1 What are the two models of inter-process communication? What are the strengths and weaknesses of the two approaches?

2.2 How are iOS and Android similar? How are they different?

2.3 What are the five major activities of an operating system in regard to file management?

2.4 What are the major activities of an operating system in regard to process management?

Bonus -- Part (II): 10

1. Describe some of the challenges of designing operating systems for mobile devices compared with designing operating systems for traditional PCs.

2. Would it be possible for the user to develop a new command interpreter using the system-call interface provided by the operating system?