

EE3009 Tutorial 1

(Circuit Switching vs. Packet Switching, Internet Basics)

Review Questions:

- What is the major difference between LAN and WAN?
- What is multiplexing? List some common multiplexing techniques.

Problem:

1. Suppose there are four employees working in your company. Each employee uses the telephone 20% of the time.
 - a) If each employee is given a dedicated telephone line, how many telephone lines are needed?
 - b) Suppose you want to minimize the cost by reducing the telephone lines.
 - i. Find the probability that exactly n of them need to use the telephone at the same time.
 - ii. Suppose you want to minimize the number of telephone lines installed. How many telephone lines should you provide for them if you want the probability that they need to wait for the telephone be less than 0.03?
 - c) What kind of multiplexing technique is used in part (b)?

Computer Exercises: (Marks will be given to you if you successfully completed the following two exercises.)

2. In this exercise, you will learn how to use the `ipconfig` command to obtain the IP address of your PC. First, open the command prompt. Then, type `ipconfig`. What is the IP address of your PC? Show your result to your tutor.
(Remark: IP address is an identification of the network interface of a device in the Internet. It takes the form $a.b.c.d$, where a , b , c , and d are decimal numbers. If needed, you can find more details in Wikipedia.)
3. In this exercise, you are required to use Packet Tracer, a network simulator program, to do the following:
 - Connect two PCs and form a very small network.
 - Assign IP addresses to the two PCs.
 - Use the `ping` command to test the connectivity.Open the file “Connect_Two_PCs.pka”, and follow the instructions. After you have completed the task, show your result to your tutor.