CS2022 ASSIGNMENT 9 (Due Date: Nov 18, 2022)

Instructions: You have to answer all of them.

Question 1

In the lecture, it has made an analogy between the Internet and the network of postal offices, see Figure 1.

(a) Fill in the following table for the similarities between them.

Postal Service	Internet Services
Network of post offices	Internet
Letter	Data
Envelope	
Envelope with letter	
Sender postal address	
Receiver postal address	
Sender name	
Receiver name	
Post office	

(b) What are the ultimate purposes of (i) postal service and (ii) Internet service?

Question 2

(a) In the lecture, I had introduced a medium access control method called CSMA/CA. Describe in detail how a computer (resp. cell phone) is able to access a wireless medium based on CSMA/CA method.

(b) Imagine that a number of computers are connected to each other via a single cable, would it possible to apply the same method for their medium (i.e. the cable) access control?

Question 3

(a) What are the usages of the process ID and session ID in data communication via Internet?

(b) What is the use of port ID in data communication via Internet?

(c) In accordance with the specification of IPv4, the maximum size of the data to be put in a datagram is around 64K bytes. If a file its size is as a large as 640K bytes, describe how this file is able to be sent from one computer to another?

(d) What kinds of files can be sent from one computer to another via Internet?

(e) Describe in detail two mechanisms which are possible for a cell phone to access the NCHU homepage.

Data Communication Service

Computer	Computer	Computer	Cell Phone	Cell Phone

INTERNET

Postal Service

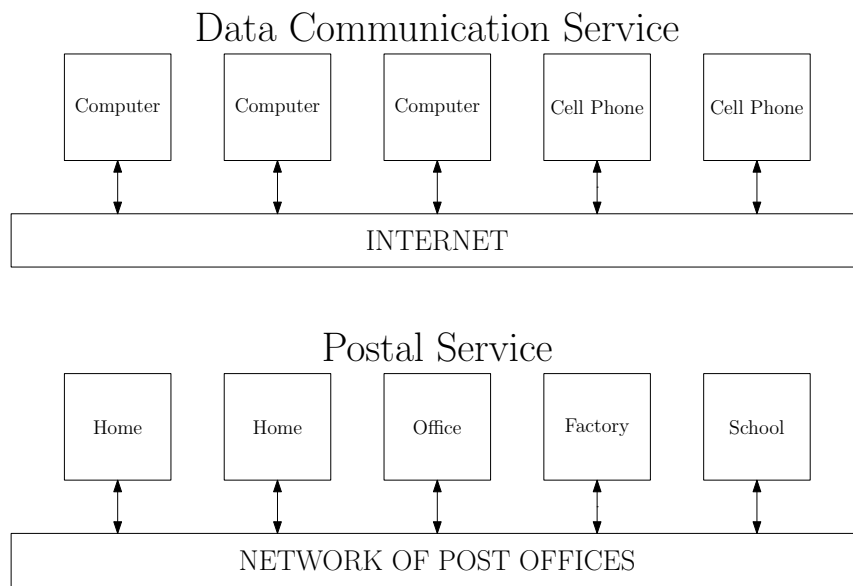| Home	Home	Office	Factory	School

NETWORK OF POST OFFICES

Figure 1: Data communication service versus postal service.