

# CS2021 ASSIGNMENT 10 (Due Date: Dec 10, 2021)

## Question 1

State the medium for data communication or telecommunication in each of the following networks.

- (a) Wireless computer network using WiFi or WiMAX technologies.
- (b) Wired computer network, like Ethernet.
- (c) Wired landline phone network.
- (d) Network of cell phones and base stations.

## Question 2

State the purposes of each of the following addresses, numbers or IDs. Besides, describe which firm or which system generate those addresses, numbers or IDs.

- (a) MAC address.
- (b) IP address.
- (c) Port number.
- (d) Session ID.
- (e) Process ID.

## Question 3

The concepts of circuit switching, message switching and packet switching have been introduced in the class.

- (a) Imagine that you make a voice call via the telecommunication network to your friend. The connection is based on which switching method?
- (b) Imagine that your smart phone has been connected to a WiFi access point. You invoke your LINE App and make a LINE call to your friend. The connection is based on which switching method?

- (c) Imagine that your notebook has been connected to the Internet. The browser Chrome has been invoked and you have typed the URL `www.nchu.edu.tw`. The request for the webpage is thus sent to the NCHU web server. The connection is based on which switching method?

## Question 4

Once a data packet has been routing from the sender computer to the destination computer via the Internet, the packet could be disappeared and unable to arrive the destination computer. State three possible causes for this phenomena.

## Question 5

- (a) State the possible sources of channel noise.
- (b) State the effect of channel noise on a packet which is being routed in the Internet.
- (c) State the difference between *error detection* and *error correction*.

## Question 6

In the lecture, three network models have been introduced. All of them are layered models. The bottom layer is always named the physical layer and the top layer is named the application layer. HTTP is an application layer protocol which supports all web applications. Protocols are thus categorized in accordance with the layers they belong to.

- (a) Other than HTTP, state another three application layer protocols which have been applied in the implementation of the application systems in our computers or smart phones.
- (b) Among the three network models, state which network model is the most popular for the implementation of today Internet.