

2019/11/29

12/3

Introduction to Computer Science

Second Midterm Test

A. Matching: choose the correct meaning. (15%)

- | | |
|-------------------------|--------------------------------|
| <u>c</u> 1. SSH | <u>f</u> 2. drivers |
| <u>a</u> 3. classes | <u>e</u> 4. XML |
| <u>m</u> 5. port number | <u>n</u> 6. Identifier |
| <u>o</u> 7. Precedence | <u>h</u> 8. multiprocessing |
| <u>l</u> 9. URL | <u>k</u> 10. Interrupt handler |
| <u>i</u> 11. Process | <u>j</u> 12. NOS |
| <u>d</u> 13. NAT | <u>b</u> 14. routers |
| <u>g</u> 15. Platform | |

- The name of the groups into which the total pool of IPv4 addresses is separated.
- The device that can send a packet on another line if the original line is damaged or busy.
- A network protocol exists primarily in Linux and UNIX operating systems.
- A protocol that is often used to allow multiple computers to share one Internet connection.
- An emerging standard for transferring data via the Internet.
- Interface programs that allow a computer to interact with peripheral devices.
- g The computer on which an OS runs and typically ties to a particular CPU.
- h A coordinated execution of a process, using two or more CPUs at the same time.
- i A small program running on a computer.
- j An operating system that is designed to provide strong network services.
- k A program the CPU stops what it's doing and calls when an interrupt occurs.
- l The English-like address of a file on the Internet.
- m. A memory address that a client program specifies for a particular network server program computer to facilitate Network Address Translation.
- n. Name of a variable or other entity in a program.
- o. Control the orders in which operators in program statements are executed

B. Filling the blanks with proper terms. (20%)

- The _____ protocol establishes a virtual circuit with the destination computer to transmit packets.
- The _____ protocol allows assigning each computer an IP address automatically every time it starts.
- A _____ server maps domain names to IP addresses.
- An _____ translates a high level language program's statement into machine codes and executes immediately.
- A _____ responds to HTTP requests from remote computers.
- The _____ is central to the operation of the IP protocol for both the source and destination computers.
- A _____ is a more readable description of an algorithm written in human language.
- A _____ can protect an internal network or node from intentional or unintentional damage from an external network.
- The _____ method allocates fixed time units to running processes in multitasking.
- The _____ dictates the order in which statements in a program are executed.

C. An Internet URL looks like below. (15%, a:10, b:5)

<http://www.es.ncku.edu.tw:8080/esncku/zh/index.htm>

- Please identify all the parts of the URL and give a detail description for each of them. (Hint: at least 6 parts)
- How does a world-wide-web client, i.e. a browser, translate the network name into the actual IP and find the machine on which the web server resides? (Hint: considering the DNS server & Mac address)

D. Please explain in detail every statement (text line) of the following C++ programs, including every symbol and every word. (15%)

```
// Text-printing program.
#include <iostream>
int main()
{
    std::cout << "Welcome to C++!\n";
    return 0;
}
```

- Please discuss the differences between a GUI-based operating system, such as Windows and Mac OS, and a console-based operating system such as Unix and DOS. 皆以文字為主 (10%)
- What part of an operating system must be loaded into the main memory of a computer when the computer boots and when the remaining parts should be loaded into the main memory? (10%)
- Please use your language (Chinese) to write a **pseudocode** for finding out the maximum number among 100 integers. Please specify the **sequence**, **selection**, and **repetition** control structures in your pseudocode. (15%)

H. (0%)

母子對話, 兒子問媽「An apple a day keeps doctor away 是什麼意思？」

媽媽說：「它是說，整天滑蘋果手機的人是拿不到博士學位的。」

