

淡江大學 101 學年度碩士班招生考試試題

系別：電機工程學系機器人碩士班 科目：計算機概論

考試日期：101 年 2 月 26 日(第二節) 本試題共 1 頁 10 大題

1. WWW is a client/server modeled Internet application. There are three components to form a WWW application. In client site, we need a WWW browser to read WWW documents. (10%)
 - (a) Please **use a figure to describe** the architecture of web browser.
 - (b) In addition to browser, what are **the other two components**?
2. The Internet today is normally considered as a five-layer model. Please **use a figure to explain** the layer structure of the Internet. (10%)
 - (a) Please **briefly summarize the duties** of each layer in the TCP/IP protocol, **the addresses** involved in each layer and specify **the transmission unit** of each layer.
 - (b) Please also **give an example protocol** of each layer from layer 3 to layer 5.
3. While designing a network, there a number of criteria have to meet. Please name **three most important criteria** that a network has to meet. (10%)
4. Please find **the minimum number of octal digits** required to store **decimal integers**, which are less than 3000. (Tip: $\log_2 = 0.3010$, $\log_3=0.4771$) (10%)
5. Please **draw a picture** to describe the pipelining and its purpose. (10%)
6. Please briefly describe and distinguish the **unconditional branch** from the **conditional branch**. (10%)
7. **How many times does the CPU need to refer to memory** when it fetches and executes an indirect-address-mode instruction if the instruction is: (a) a computation requiring a single operand, (b) a branch? (10%)
8. Perform the operation: $-19 - 23$. Please use an 8-bit allocation for each integer. First convert each integer to two's complement, do the subtraction operation (show the binary process procedures), and then convert the result to decimal. (10%)
9. What are the four formats to represent integer in computer? Please represent -107 by the four schemes on byte (i.e., 8-bit). (16%)
10. Please use an example to explain "Bubble sort". (10%)