

國立中正大學九十一學年度碩士班招生考試試題
系所別：機電光整合工程研究所 科目：計算機概論

共 2 頁

1. [20 分] Briefly explain the following terms.

- (a). Flash ROM
- (b). virtual memory
- (c). BIOS
- (d). I/O bridge
- (e). SCSI

2. [10 分] Please explain the differences between polling I/O and interrupt I/O.

Show an example application for each case respectively.

3. [16 分] In a C program, we define the following variables:

```
char A;  
unsigned char B;  
short int C;  
unsigned short D;
```

where A and B are one-byte variables, and C as well D are two-byte variables.

- (a). How many combinations do A and C can represent respectively?
 - (b). What are the largest numbers that A and B can represent respectively?
 - (c). Please give the smallest number in hexadecimal that C can represent.
 - (d). Is it possible to write a statement "D = A;"? If yes, what may happen?
4. [18 分] Give the output from the following program. Use ' ' for a space.

```
void function(int* a, int b)  
{  
    int *temp;  
  
    (*a)++;  
    b--;  
    temp = a;  
    a = b;  
    b = temp;  
  
}
```

```
void main()  
{  
    int i = 10;  
    int j = 5;  
    int *iptr = &i;  
    int *jptr = &j;  
  
    printf("i = %03d and j = %03d\n", i, j);  
    function(&i, j);  
    printf("i = %3d and j = %3d\n", i, j);  
    printf("**iptr = %d and *jptr = %d\n", *iptr, *jptr);  
}
```

國立中正大學九十一學年度碩士班招生考試試題

系所別：機電光整合工程研究所 科目：計算機概論

5. [12分] 選擇題 (每題答對得3分, 答錯倒扣1分)

- (a) Which of the following input methods is not analog to digital?
- A. a 3/2-inch diskette
 - B. a mouse
 - C. a monitor worn by a heart patient
 - D. a sensor to detect nuclear radiation levels
- (b) Which of the following is not a system program?
- A. Operating System
 - B. Compiler
 - C. Browser
 - D. Assembler
- (c) All of the following characteristics apply to LANs except
- A. Sharing resources like laser printers
 - B. Allowing e-mail between users
 - C. Networking that span an entire state
 - D. Buying site licenses for shared software
- (d) Let $f(n) = n$ for $n = 1, 2$, and 3 , and $f(n) = f(n-1) + f(n-2) - f(n-3)$ for all n greater than 3 . What is the value of $f(7)$?
- A. 37
 - B. 7
 - C. 19
 - D. 20

6. [24分] 簡答題

- (a) What are differences between DRAM and SRAM?
- (b) How to present the number sixty in a number system that uses 3 as the base?
- (c) E-bookcase is an e-learning device for students to read textbook, record learning status, and evaluate learning results in class or any other places. What hardware and software design do you think is the most important to make the e-bookcase inexpensive, light, and powerful enough for students to use? Why?