

國立中正大學九十二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

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1. (20 分) Briefly explain the following terms

- (a). SOC
- (b). Interrupt handle vector
- (c). IP address
- (d). Disk array and RAID
- (e). FPGA

2. (15 分) 選擇題 (答對得 3 分，答錯倒扣 1 分)

- (1). Which of the following enables different computers on different networks to communicate with each other
 - A. modems
 - B. internet services provider
 - C. TCP/IP software
 - D. FTP
- (2). Which of the following refers to the execution of two or more programs by multiple computers?
 - A. multiprocessing
 - B. multitasking
 - C. time-sharing
 - D. multiprogramming
- (3). Which of the following is distributed free of charge but requires users to make a contribution later on?
 - A. public domain software
 - B. shareware
 - C. freeware
 - D. proprietary software
- (4). Disk storage is usually measured in Giga bytes. Roughly how many bytes of information can be stored in a 40G hard disk?
 - A. 40,000,000
 - B. 400,000,000
 - C. 4,000,000,000
 - D. 40,000,000,000
- (5). A motion control requires at least 1MHz sampling rate. Which of the following processing time is required for handling the motion control computation?
 - A. < 1ms
 - B. < 1us
 - C. < 1ns
 - D. < 1ps

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3. (10 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;
    (*temp)++;
    (*a)++;
}
```

```
void main()
{
    int i = 10;
    int j = 'E'-'A';
    int *ptr = &i;
    int *ptr = &j;

    printf("i = %3d and j = %3dn", i, j);
    function(&i, j);
    printf("i = %03d and j = %-3dn", i, j);
    printf("ptr = %d and *ptr = %dn", *ptr, *ptr);
}
```

4. (20 分) 簡答題

- Compare Windows and Linux as an operating system.
- How to present the number fifty five in a number system that uses 5 as the base?
- Briefly explain the differences between polling I/O and interrupt-driven I/O.
- One claims that "A 2GHz Pentium-IV is four times faster than a 500MHz Pentium!" Do you think the argument is correct or not? Why?

5. (20 分) If we would like to build a traffic light control system (紅綠燈號誌), describe how you construct the system by using a microcontroller with 3 LED's (red, green, yellow). Give the hardware diagram and corresponding software control modules.

6. (15 分) Internet

- Give a diagram to show the basic idea how web services over internet work.
- Explain what HTML is and how web pages can be linked in browsing.
- Explain why JAVA programs can be employed in web pages and be executed regardless of machine types.