

# 義守大學 93 學年度研究所碩士在職專班考試試題

系所別	資訊工程學系	考試日期	93/4/24
考試科目	計算機概論	總頁數	4

※此為試題卷，請將答案填寫在答案卷內，未寫於答案卷內者，不予計分。

※不可使用計算機

## 一. 選擇題

1. Find the word or phrase from the list below that best matches the description in the following questions. (5%)

- |                     |                   |                                 |              |
|---------------------|-------------------|---------------------------------|--------------|
| a. assembler        | b. implementation | c. instruction set architecture | d. memory    |
| e. operating system | f. compiler       | g. control                      | h. datapath. |
| i. die              | j. cache          | k. instruction                  | l. yield     |

- 1). ( ) Component of the processor that performs arithmetic operations.
- 2). ( ) Component of the processor that tells the datapath, memory, and I/O devices what to do according to the instruction of the program.
- 3). ( ) Program that manages the resources of a computer for the benefit of the programs that run on that machine.
- 4). ( ) Program that translates a symbolic version of an instruction into binary form.
- 5). ( ) Program that translates from a higher-level notation to assembly language.

2. ( ) 若要以 CIDR (Classless Interdomain Routing) 的方式合併 8 個 Class C 網路，則子網路遮罩應該設為 (5%)

- (1) 255.255.224.0 (2) 255.255.240.0 (3) 255.255.248.0  
(4) 255.255.252.0

3. ( ) 當 IP 位址的主機位址全為 0 時代表什麼意思？ (5%)

- (1) 私人 IP 位址 (2) 對於該網路的廣播封包  
(3) 該網路的位址 (4) Loopback 位址

4. ( ) 當 IP 位址的主機位址全為 1 時代表什麼意思？ (5%)

- (1) 私人 IP 位址 (2) 對於該網路的廣播封包  
(3) 該網路的位址 (4) Loopback 位址

5. Use the following list of values for question (a) and (b). (5%)

length	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
10	5	7	20	33	44	46	48	99	101	102	105

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- (a). ( ) How many comparisons does it take using a sequential search to find the item 44 is in the list?  
 (a). 3      (b). 4      (c). 5      (d). 6
- (b). ( ) How many comparisons does it take using a binary search to find the item 44 is in the list?  
 (a). 3      (b). 4      (c). 5      (d). 6

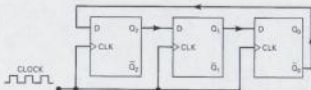
### 二. 填充與計算

6. 若有一公司要用到 500 個 IP，並想將 192.168.20.0 與 192.168.21.0 這兩個 C 級子網路合併成同一個網路，以滿足需求，其子網路遮罩應為何？ (5%)

Ans: \_\_\_\_\_

7. 在下圖中，假設起始狀態為  $Q_2=Q_1=Q_0=0$ ，若 clock 的頻率為 1.2MHz，則在 Q1 處的頻率為多少？ (5%)

Ans: \_\_\_\_\_



8. Assume that Y is a two dimensional array and is stored in a byte-addressable machine. Each element of Y occupies two bytes. If the address of Y(3,3) is  $1968_{10}$ , and Y(2,4) is  $1980_{10}$ . What is the address of Y(3,4)? (Note: Express the address in base 10.) (5%)

Ans: \_\_\_\_\_

9. A logical address in a paged memory management system is often written as <page, offset>. If, in a paged memory management system, the frame size is 1024 and the following page map table applies to the currently executing process, compute the physical addresses that corresponding to the logical address of <1,501>: (5%)

Page	0	1	2	3	4
Frame	7	12	99	1	4

Ans: \_\_\_\_\_

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10. The IEEE 754 has following single precision floating point format (5%)

- Sign bit is bit 31
- Exponent is bits 30-23, excess-127
- Fraction is bits 22-0, implied "1."

What decimal number is represented by this word?

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	...	...	1	0	
1	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0

Ans: \_\_\_\_\_

11. Suppose that x and y have byte values 0x66 and 0x93 respectively. Fill in the following table indicating the byte value of the different C expressions. (Note: Express the value in hex format) (10%)

Expression	Value
x & !y	(a)
x   y	(b)
x && ~y	(c)
!x    !y	(d)
~x   ~y	(e)

12. Fill in the following table showing the result of multiplying two different four-bit numbers. Express the results in eight-bit numbers. (Note: Express the values in binary format) (10%)

Mode	x	y	x * y
Unsigned	0110	0010	(a)
Two's Complement	1110	0010	(b)

13. Consider the following C program declarations (10%)

```
short S[7];
short *T[3];
short **U[6];
char V[8];
long double *W[4];
```

Fill in the following table describing the element size and the total size of these arrays.

Array	Element Size	Total Size
S	(a)	(b)
T	(c)	(d)
U	(e)	(f)
V	(g)	(h)
W	(i)	(j)

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14. Given jobs and corresponding remaining times required, determine the order, the wait time, and turnaround time for SJF (Shortest Job First) scheduling. Finally, determine the average wait and turnaround time (評分以最後這兩個平均值為準) (10%)

Job	Time remaining	Order	Wait time	Turnaround time
A	8	(a)	(b)	(c)
B	14	(d)	(e)	(f)
C	4	(g)	(h)	(i)
D	12	(j)	(k)	(l)
E	10	(m)	(n)	(o)
Averages			(p)	(q)

### 三. 問答題

15. Explain following terms (10%)
- (a). Multiprogramming
  - (b). Timesharing
  - (c). Real-time system
  - (d). Dead-lock
  - (e). Daemon