

# 國立臺灣師範大學 101 學年度碩士班招生考試試題

科目：電子計算機概論

適用系所：圖書資訊學研究所

注意：1.本試題共 2 頁，請依序在答案卷上作答，並標明題號，不必抄題。2.答案必須寫在指定作答區內，否則依規定扣分。

- 一、多值屬性(multi-value attribute)為資料庫分析過程中會碰到的情形，然現今資料庫管理系統無法提供多值屬性之資料表設計，試至少提出兩種解決的方法並說明之。(10 分)
- 二、何謂雲端計算(cloud computing)？與主從(client/server)架構有何異同？雲端計算對於軟、硬體發展有何影響？試說明之。(10 分)
- 三、何謂觸發程式(trigger)？對現今資料庫設計有何影響？試舉例說明之。(10 分)
- 四、選擇題 (20 分，每題 4 分)(如無正確答案，請答以上皆非)

1. Which of the following instructions (as described in the following language description table) places 00000000 in register 5?

- A. 25FF      B. 9555      C. 15FF      D. 8555

Op-code	Operand	Description
1	RXY	<b>LOAD</b> the register R with the bit pattern found in the memory cell whose address is XY. <i>Example: 14A3 would cause the contents of the memory cell located at address A3 to be placed in register 4.</i>
2	RXY	<b>LOAD</b> the register R with the bit pattern XY. <i>Example: 20A3 would cause the value A3 to be placed in register 0.</i>
8	RST	<b>AND</b> the bit patterns in register S and T and place the result in register R. <i>Example: 8045 would cause the result of ANDing the contents of registers 4 and 5 to be placed in register 0.</i>
9	RST	<b>EXCLUSIVE OR</b> the bit patterns in registers S and T and place the result in register R. <i>Example: 95F3 would cause the result of EXCLUSIVE ORing the contents of registers F and 3 to be placed in register 5.</i>

2. Which of the following is the binary representation of  $4\frac{5}{8}$  ?  
A. 100.11      B. 10.011      C. 110.101      D. 100.101
3. Which of the following bit patterns represents the value 5 in two's complement notation?  
A. 00011010      B. 11111011      C. 00000101      D. 11111011
4. If the network identifier of a domain in the Internet is 115.48, how many unique IP addresses are available for identifying machines within the domain (assuming 32 bit addresses)?  
A. 4,096      B. 16,384      C. 32,768      D. 65,536
5. Which of the following bit patterns (represented in hexadecimal notation) represents a negative number in two's complement notation?  
A. 7F      B. 55      C. A6      D. 08

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五、解釋名詞 (20 分，每題 4 分)(請勿只翻譯成中文)

1. Object Oriented Programming
2. Binary Search Tree
3. Time Sharing
4. Deadlock
5. Machine Cycle

六、請說明 router, repeater, bridge, switch, hub 等網路設備之間的異同。(10 分)

七、Programming Understanding (20 分，每題 10 分)

1. Write a function to return the n-th term of Fibonacci sequence (1st term: 0, 2nd term: 1) by RECURSIVE approach.
2. Write the output of following chunk of code(Notes: setw ( int n ): Sets the number of characters to be used as the field width for the next insertion operation.)

```
int a[3][3] = {{0, 1, 1}, {1, 0, 1}, {1, 1, 0}};  
int b[3][3] = {{1, 2, 3}, {4, 5, 6}, {7, 8, 9}};  
int c[3][3];
```

```
for(int i=0; i<3; i++){  
    for(int j=0; j<3; j++){  
        c[i][j]=0;  
        for(int k=0; k<3; k++){  
            c[i][j]+=a[i][k]*b[k][j];  
            cout<<setw(3)<<c[i][j];  
        }  
        cout<<endl;  
    }  
}
```