

# 國立臺北科技大學 100 學年度碩士班招生考試

系所組別：4212 經營管理系碩士班甲組

## 第二節 計算機概論 試題 (選考)

第一頁 共一頁

### 注意事項：

1. 本試題共八題，配分共 100 分。
2. 請標明大題、子題編號並依序作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

6. What is the execution result of the following C program? (10%)

```
int a[5], b[5];
for(i=0;i<5;i++){
    a[i]=2*i-1;
    b[4-i]=2*i+1;
}
for(i=0;i<5;i+=2)
    if(a[i]>b[i])
        b[i]+=a[i];
for(i=0;i<5;i++)
    printf("%d ",b[i]);
```

7. Draw a neural network that can simulate an OR gate. (10%)

8. Consider the following order. Assume the unit price of each product depends on ProductNo. OrderNo, CustomerNo, and ProductNo are unique identifiers. Please design a relational database to store order data. All relational tables must satisfy 3NF (Third Normal Form) requirements. Identify the primary key of each table. (20%)

Order			
<b>OrderNo:</b> 20110111			
<b>CustomerNo:</b> 1			
<b>OrderDate:</b> 11/01/2011			
<b>CustomerName:</b> National Taipei University of Technology			
<b>CustomerAddress:</b> No. 1, Sec.3, Chung-Hsiao E. Road, Taipei 10608, Taiwan, R.O.C.			
ProductNo	Description	UnitPrice	Quantity
M-128	Printer	300	2
B-381	Monitor	400	10

1. What are the three subsystems that make up a computer? (10%)

2. (1) Convert the decimal number 15.3125 to binary. (5%)

(2) Convert the hexadecimal number BC.D to octal. (5%)

(3) A number system with base  $x$  satisfies the expression  $(256)_x + (41)_x + (36)_x = (311)_x$ . What is the value of  $x$ ? (10%)

3. If you have a square room with a computer in each corner, which topology is more reliable and needs least cable to design a network? Please draw the figure and justify your answer. (10%)

4. What is the number of moves required for solving a Tower of Hanoi puzzle with  $n$  disks? Please justify your answer. (10%)

5. What is the execution result of the following C program? (10%)

```
int i, j, s=2;
for(i=0; i<5;i++)
    for(j=0;j<2*i;j++)
        if( j%3 )
            s += j;
printf("s=%d",s);
```