

淡江大學 99 學年度碩士班招生考試試題

92-1

系別：資訊工程學系

科目：資 訊 概 論

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P.1

本試題雙面印製

一、Let a piece of program and its function as follows, please show the output by (a) call by address and (b) call by value, respectively. (5%, 5%)

Main piece:

```
int A = 1, B = 2, C;  
C=Fun(A, A, A+B);  
output A, B, C;
```

Function piece:

```
Fun(X, Y, Z) {  
    Y = Z;  
    output X, Y, Z;  
    return (X+Z); }
```

二、Please find the output of the following C program. (5%)

```
#include <stdio.h>;  
#define MAX(x, y) (x < y ? x : y)  
#define Output_D(a) printf("a");  
#define Output_R(a, b, c) Output_D(a), Output_D(b), Output_D(c)  
main()  
{  
    int m = 1, n = 3;  
    Output_R( MAX( m++, --n), m, n);  
}
```

三、Please reduce the Boolean function to simplest. (10%)

$$F(X, Y, Z) = XY'Z + XY' + Z' + X'YZ + X'YZ' + X' + Y'Z + X' + Y' + Z'$$

四、Please transfer the Decimal number to Binary number. (5%)

232.856

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92-2

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P.2

五、Please give the Prefix and Postfix expressions. (5%, 5%)

$$X=(A-B)^{(X+D)^{(Y-4\%H)*G-6/(F+2)+C}$$

the ^ is exponential operator and the % is mod operator

六、A is 2-dimensional array A(m, n), the location the $A(5,3)=5314$ and $A(8, 5) = 5422$. Assume that each element occupies four bytes, then what is the location of $A(2, 7)$? (10%)

七、Please draw the operations procedure of binary search tree as step by step (One figure by one step), according to the following requests. (10%)

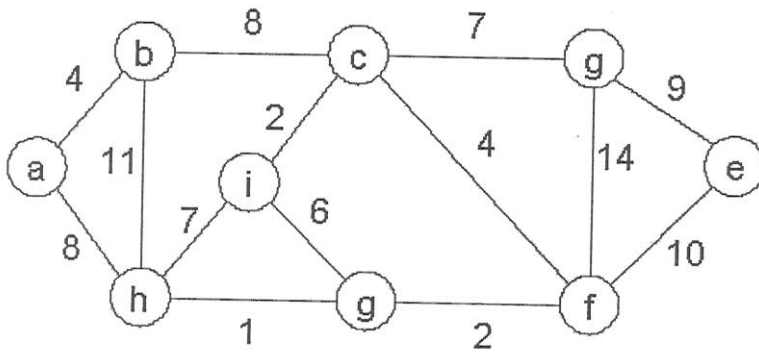
Input: 53, 82, 77, 37, 26, 45, 87, 18, 66, 12, 84, 79,

Delete: 12, 77

Input: 58, 23, 51, 16, 95

Delete: 87

八、Please draw out the Minimum Cost Spanning Tree of the following graph in Kruskal's and Prim's methods. You should draw your answers step by step. (5%, 5%)



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70-3

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P.3

九、There is a Knapsack with 8Kg maximal capacity. Please apply Dynamic Programming Design and Greedy Method Design with Best Benefit Only to find the Optimal Solution, respectively. The possible selected items are following. (10%, 5%)

Item	Weight	Benefit
A	4Kg	\$4500
B	5Kg	\$5700
C	2Kg	\$2250
D	1Kg	\$1100
E	6Kg	\$6700

十、(a) If the local area network has the IP address configuration, 163.13.20.0/23. How many computers can access to network and Why? (8%)

(b) If there are four sub-networks with IP segments, 163.13.30.0, 163.13.31.0, 163.13.32.0, and 163.13.33.0, will be integrated by CIDR(Classless Inter-Domain Routing). What is the Mask value? Why? (7%)