

淡江大學 107 學年度日間部轉學生招生考試試題

系別：資訊工程學系三年級

科目：程式語言

48-1

考試日期：7月27日(星期五) 第2節

本試題共 7 大題, 3 頁

1. Write each of the following as a C expression. (10%)

- (a) $(b^2 - 4ac) / 2a$ (b) $c \times 9/5 + 32$ (c) $(f - 32) \times 5/9$ (d) $w / (h / 100)^2$
(e) $s(s-a)(s-b)(s-c)$

2. Answering the following questions. Assuming **the address** of variable x is 0x7000, and **the address** of variable a is 0x8000. (15%)

(sizeof(int) = 4, sizeof(char) = 1)

```
int x[5] = {100,200,300,400,500};
```

```
int *intPtr;
```

```
intPtr = x;
```

(a) intPtr = ?

(b) *intPtr = ?

(c) intPtr + 1 = ?

(d) *(intPtr + 1) = ?

(e) *intPtr + 1 = ?

```
intPtr = &x[2];
```

(f) intPtr = ?

(g) intPtr[2] = ?

(h) *intPtr = *(intPtr + 1); x[2] = ?

```
char a[5] = {'T', 'A', 'B', 'L', 'E'};
```

```
int *charPtr;
```

```
charPtr = a;
```

(i) (int)charPtr = ?

(j) charPtr + 1 = ?

(k) *(charPtr + 1) = ?

(l) *charPtr + 1 = ?

```
charPtr = charPtr + 4;
```

(m) a[0] = ?

(n) charPtr[0] = ?

(o) *charPtr = *charPtr + 1;

*charPtr = ?

3. Design a recursive function Divide(int n) to divide the input integer n as a serial digit. (15%)

```
Input :  
n = 148
```

```
output :
```

1

4

8

```
Input :  
n = 23
```

```
output :
```

2

3

```
void Divide(int n){
```

```
    // complete this program
```

```
    // hint:
```

```
    // 1487 % 10 = 7, 1487 / 10 = 148
```

```
    // 148 % 10 = 8, 148 / 10 = 14
```

```
}
```

背面尚有試題

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48-2

考試日期：7月27日(星期五) 第2節

本試題共

7 大題， 3 頁

4. Print out the output. (20%)

```
(a)
#include <stdio.h>
int Fun(int, int);
int Fun(int y, int x) {
    printf("Fun():x = %d\n",x);
    printf("Fun():y = %d\n", y);
    if (x > y)
        return x;
    else
        return y;
}
int main() {
    int x, y;
    x = 10; y = 20;
    printf("main():x = %d\n", x);
    printf("main():y = %d\n", y);
    printf("max = %d\n",Fun(x, y));
    return 0;
}
```

```
(b)
#include <stdio.h>
void A(int, int);
int B(int);
void A(int x, int y) {
    int n;
    n = x;
    do {
        if(n == x)
            n = B(x);
        else
            n = B(y);
    }while(n);
}
int B(int n) {
    n = n*10;
    printf("B: n = %d\n",n);
    return n;
}
int main(){
    int n1, n2;
    n1 = 10; n2 = 0;
    A(n1,n2);
}
```

5.

```
class A {}
class B {}
class C {
    public static void main(String[] args) {}
}
```

- (a) What is the filename of this Java program should be? (5%)
- (b) Please explain the functions of java.exe. (5%)
- (c) Please explain the functions of javac.exe. (5%)
- (d) Which one is filename extension of the code after compiled,
(1).java (2).class (3).exe (4) no filename extension? (5%)

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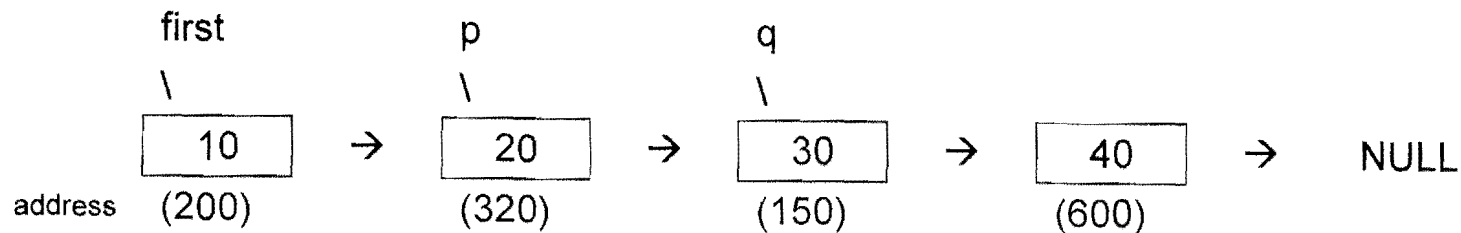
科目：程式語言

48-3

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本試題共 7 大題， 3 頁

6. The following list has 4 nodes, there are three pointers, the pointer first points to 1st node, the pointer p points to 2nd node and the pointer q points to 3rd node. (10%)



The structure of node is

```
class Node {
public:
    int data;
    Node *link;
};
```

Fill in the answer (if any) in each of the following questions. (10%)

- (a) first = ? (b) first->data = ? (c) first->link = ? (d) first->link->data = ?
 (e) first->link->data = ? (f) p->link = ? (g) p->link->data = ?
 (h) first->link->data->link = ? (i) q->link->link = ? (j) q->link->data = ?

7. Using Java to rewrite the following codes, the class Aircraft, class Fighter and main() must in the different classes. (10%)

<pre>#include <iostream> using namespace std; class Aircraft { protected: int engin; public: Aircraft(); Aircraft(int); }; Aircraft::Aircraft():engin(4){ } Aircraft::Aircraft(int e):engin(e); }</pre>	<pre>class Fighter:public Aircraft{ protected: int gun; public: Fighter(int,int); }; Fighter::Fighter(int e, int g):Aircraft(e), gun(g){ } int main(){ cout<<"Boeing 747:"<<endl; Aircraft Boeing747; cout<<"F18:"<<endl; Fighter F18(2,1); return 0; }</pre>
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