

# 淡江大學 102 學年度進修學士班轉學生招生考試試題

14/

系別：資訊工程學系三年級

科目：程式語言

考試日期：7 月 22 日(星期一) 第 5 節

本試題共 5 大題， P1 頁

本試題雙面印刷

## 1. Short Answers (簡答題). 35%

- Give three loop structures in C. (寫出三種迴圈結構)
- In C, list two primitive data types, and give one user-defined data type Date that has the field year, month and day.
- In C, what is a function prototype (函式原型)? In what situation will it be needed? Explain with an example.
- In C, there are two types of parameter passing (參數傳遞). Discuss these two types with appropriate examples.
- In C, consider the variable declaration `int d[10]` and `int *e[10]`. Describe about what kind of data are stored in array `d` and array `e`.
- Give three main features in object-oriented programming. (描述物件導向設計三個主要特性)
- How to determine if a program is a recursive program (遞迴程式)?

## 2. What does the function `mystery1` do? If $n = 7531$ is passed to `mystery1`, what is the return value? (10%)

```
int mystery1( int n ){
    int r = 0, divisor = 1000, multiplier = 1;
    while ( n > 10 ) {
        if ( n >= divisor ) {
            r += n / divisor * multiplier;
            n %= divisor;
            divisor /= 10;
            multiplier *= 10;
        } else divisor /= 10;
    }
    r += n * multiplier;
    return r;
}
```

背面尚有試題

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3. Modify the following code to produce the output shown below. Use proper indentation techniques. You may not make any changes other than inserting braces (修改僅能以加大括弧方式為之，如果無法產生所要的輸出，請說明無法修改). (25%)

```
if ( y == 8)
if (x == 5)
printf("@@@@\n");
else
printf("#####\n");
printf("$$$$$\n");
printf("&&&&\n");
```

- (a) Assume  $x = 5$  and  $y = 8$ ,  
the following output is produced.

```
@@@@@
$$$$$
&&&&&
```

- (b) Assume  $x = 5$  and  $y = 8$ ,  
the following output is produced.

```
@@@@@
```

- (c) Assume  $x = 5$  and  $y = 8$ ,  
the following output is produced.

```
@@@@@
&&&&&
```

- (d) Assume  $x = 5$  and  $y = 7$ ,  
the following output is produced.

```
#####
$$$$$
&&&&&
```

- (e) Assume  $x = 5$  and  $y = 7$ , output nothing.

14-3

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4. Identify and correct the errors (including both syntax and logic errors) in each of the following statements. (20 %)

(1). Print the value from 1 to 5 (7 %)

```
x = 1;
while(x<5);
    printf("%d ", x++);
```

(2). Print whether a given integer is odd or even. (7 %)

```
switch (value%2){
    case 0:
        printf("Even integer\n");
    case 1:
        printf("Odd integer\n");
}
```

(3) Find and correct the error in each the following program segments. (6%)

```
struct person {
    char firstname[15];
    char lastname[15];
    int age;
}
person d[10];
d[9]->firstname="James";
d[9]->lastname="Bond";
d[9]->age = 10; //Set the age of the last element
```

5. Recursion Trace: Show the output when the function Func (36, 100) is called. (10%)

```
#include <stdio.h>
#include <stdlib.h>
int Func(int a, int b){
    printf("%d %d\n", a, b);
    if(a==0) return b;
    else return Func(b%a, a);
}
int main(){
    Func(36, 100);
    return 0;
}
```