

國立交通大學 107 學年度碩士班考試入學招生試題

科目：計算機概論(8041)

考試日期：107 年 2 月 2 日 第 4 節

系所班別：資訊學院碩士在職專班

組別：資訊組

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【不可使用計算機】*作答前請先核對試題、答案卷(試卷)與准考證之所組別與考科是否相符!!

1. (20%) Given the following, evaluate the value of each question

```
int a[3]={0,1,2};
int* p=a+1;
```

(a) *p--

(b) *--p

A: _____

A: _____

(c) (*p)--

(d) --*p

A: _____

A: _____

2. (10%) Write down the output of the following code.

(5%) Please explain why you wrote it.

```
int arr[10];
int *ptr = arr;
printf("The memory size of arr is %d\n", sizeof(arr));
printf("The memory size of ptr is %d\n", sizeof(ptr));
Note: assume the size of an integer is 4 bytes
```

3. (15%) Please write down the output of the following code.

```
#include <stdio.h>
#include <stdlib.h>

int recv(n) {
    if (n == 0) return 1;
    return 2 * recv(n - 1) + 3;
}

int main() {
    int a = recv(5);
    printf("%d\n", a);
    return 0;
}
```

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4. The following code is written in a C like grammar:

```
void func (int x, int y)
{ x += x;
  y += y;
}
void main ( )
{ int array[2] = {1, 3};
  func (array[0], array[1]);
}
```

By using the following parameter passing methods, what are the values in the array after main is executed?

- (a) (5%) Pass by value
- (b) (5%) Pass by reference
- (c) (5%) Pass by value-result

5. During the execution, the so-called garbage may be generated, please explain

- (a) (5%) What is garbage?
- (b) (5%) How garbage is generated?
- (c) (5%) Give a program example that leads to the generation of garbage.

6. (10%) What are the differences between a RISC architecture and a CISC architecture? Please also describe their advantages and disadvantages in your answer.

(10%) What are the difference between the monolithic operating system and the microkernel operating system? Please give an example for each in your answer.