

科目：計算機概論

系所組：電機工程系碩士班丙組

1. Single-choice Questions (20%)

規定事項：(i) 未按作答格式作答者，扣該科總分10分。(ii) 未在彌封答案內作答者，不予計分。

作答格式範例：

- (1) A (2) B (3) C (4) D (5) A
(6) A (7) B (8) C (9) D (10) A

- (1) Which one of the following peripherals is not an output device of a computer? (A) LED display, (B) touchpad, (C) ink printer, (D) LCD monitor, (E) laser printer.
- (2) Which one of the following machines is not a computer that has CPU, memory and operating system? (A) Traditional television, (B) iPhone, (C) iPad, (D) tablet, (E) notebook.
- (3) Which one of the following is not an operating system? (A) Linux, (B) iOS, (C) Windows, (D) iPad, (E) Android.
- (4) Which one of the following is not the function of an operating system? (A) File storage, (B) memory management, (C) hardware peripheral management, (D) process scheduling, (E) instruction load and execution.
- (5) Which one of the following is not the method used by operating system for multi-tasking? (A) Priority scheduling, (B) multi-threading, (C) race condition, (D) round-robin scheduling, (E) first-come-first-service

[Questions for C Language]

- (6) A function that calls itself either directly or indirectly is a(an) _____ function. (A) mathematical, (B) recursive, (C) iterative, (D) call-by-reference, (E) call-by-value.
- (7) Which of the following gives the number of elements in the array "int r[10];" ?
(A) sizeof (r)
(B) sizeof (*r)
(C) sizeof (r) / sizeof (int)
(D) sizeof (*r) / sizeof (int)
- (8) What does the variable definition means? "int *const xPtr;"
(A) Define a constant pointer to non-constant data.
(B) Define a non-constant pointer to constant data.
(C) Define a non-constant pointer to non-constant data.
(D) Define a constant pointer to constant data.
- (9) The standard C function _____ is used to produce random numbers. (A) srand(), (B) time(), (C) pow(), (D) random(), (E) rand() .
- (10) What are the final values (not printed values) of the variables 'x' and 'y' when the for loop finishes?

int x, y;

※注意：1. 考生須在「彌封答案卷」上作答

2. 本試題紙空白部分可當稿紙使用。

3. 考生於作答時可否使用計算機、法典、字典或其他資料或工具，以簡章之規定為準。

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```
for ( x=1, y=5; x<=5, y<=12; x++, y++ )
```

```
printf ("x=%d, y=%d\n", x, y);
```

(A) x=8,y=12, (B) x=8,y=13, (C) x=14,y=10, (D) x=9, y=13, (E) x=9, y=12.

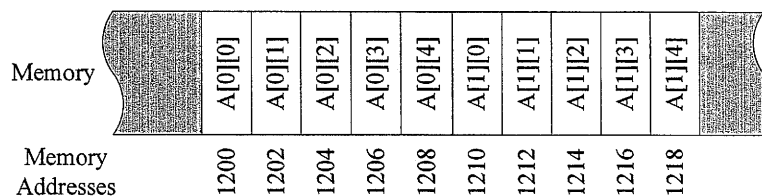
2. In the following program segments, is there any error in them? If they have, please point out the errors and how the errors can be corrected? (10%)

```
void input (int input);
{
    int input;
    float output;
    printf ("The value of input is: %f.", input);
    output = (float) input;
    return output;
}
```

3. Please refer to the following figure of a C array: int A[2][5], and answer the following questions. (20%)

- (1) What is the value of A[0][2]?
- (2) What is the value of A[1][2]?
- (3) What is the value of A?
- (4) What is the value of &A?
- (5) What is the value of A[0]?
- (6) What is the value of A[1]?
- (7) What is the value of &A[0]?
- (8) What is the value of &A[1]?
- (9) What is the value of &A[1][2]?
- (10) What is the value of A[0, 1]?

int A[2][5] = {1, 2, 3, 4, 5, 6, 7};



4. Given a set of data: 20, 1, 8, -5, 102, 98, 54, 22, use the following methods to sort the data in

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ascending order. (15%)

(1) Bubble sort, (2) quick sort, (3) heap sort.

5. Design a recursive algorithm that prints out all possible rearrangements of the four symbols: @, #, \$, %. Write the pseudo code and analyze its complexity. (10%)

6. Explain the difference between two concepts. (15%)

(1) Queue v.s. Stack

(2) Single-core CPU v.s. Multi-core CPU

(3) Compiler v.s. Interpreter

(4) C v.s. Java

(5) Tree v.s. Graph

7. Briefly explain the following terminologies. (10%)

(1) Reduced Instruction Set Computer (RISC)

(2) WiMax, LTE, and 4G

(3) Algorithm

(4) TCP/IP

(5) Artificial Intelligence

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