註：本次考試 [不可] 參考自己的書籍及筆記 [不可] 查字典 [不可] 使用計算器

PART I   C/C++ Programming Language

(6%) 1. The following declaration was used to create the prices array:

double prices[500];

Write three different header lines for a function named sort_arr() that accepts the prices array as an argument named in_array and returns no value.

(8%) 2. (a) What is the effect when the keyword 'register' is applied to a local variable declaration?

(b) What is the effect when the keyword 'static' is applied to a local variable declaration?

(c) What is the effect when the keyword 'extern' is applied to a global variable declaration?

(d) What is the effect when the keyword 'static' is applied to a global variable declaration?

(8%) 3. (a) What is a function prototype? What is a header file?

(b) Explain in detail the relationship among function prototypes, header files, the preprocessor, and the compiler.

(8%) 4. C automatically passes arrays to functions using simulated call by reference.

(a) Explain in detail what it means and how it is accomplished.

(b) What are the advantages of "call by reference"?

(8%) 5. (a) What are the three ways to pass a structure to a function? Are they call by value or call by reference?

(b) How do you pass an array to a function call by value?

(9%) 6. Provide the type definition for each of the following:

(a) Union data containing char c, short s, long l, float f, and double d.

(b) Structure bitCard containing three unsigned bit fields: face (4 bits), suit (2 bits), and color (1 bit).

(c) enumeration months with enumeration constants JAN through DEC whose values start with 1.

(4%) 7. Assume the following declaration:
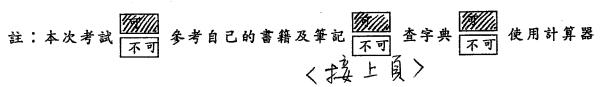
char x = 1, y = 2;

Explain the difference between:

x & y   and   x && y

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(5%)　8. C++ provides inline functions to help reduce function-call overhead.

　　　(a) What is an inline function?

　　　(b) What are the advantages of inline functions over preprocessor macros?

PART II　Basic Computer Concepts

(16%) 9. Distinguish between

　　　(a) pseudocode and flowchart

　　　(b) syntax errors and logic errors

　　　(c) RAM and ROM

　　　(d) MIS and DSS

(6%) 10. What is the relationship between a microprocessor, a motherboard, and a microcomputer?

(5%) 11. What does "booting the system" mean?

(8%) 12. (a) What is the control unit?

　　　(b) What are the functions of the control unit?

(9%) 13. (a) What are the procedure-oriented programming languages? Give two examples.

　　　(b) What are the object-oriented programming languages? Give two examples.

　　　(c) What are the visual programming languages? Give two examples.