

Part 1 選擇 (30%, 1 for each)

Chapter 1

- 1) The term **hardware** refers to ____**B**____.
 - A) the difficulty of programming
 - B) the physical components that make up a computer
 - C) the way a computer's storage space is organized
 - D) the fixed order of a program's instructions
 - E) None of the above

- 2) At the heart of a computer is its central processing unit. The CPU's job is to ____**D**____.
 - A) fetch instructions
 - B) carry out the operations commanded by the instructions
 - C) produce some result
 - D) do all of the above
 - E) do none of the above

- 3) An integrated development environment (IDE) normally includes ____**D**____.
 - A) a text editor
 - B) a compiler
 - C) a debugger
 - D) All of the above
 - E) None of the above

- 4) The purpose of a memory address is ____**A**____.
 - A) to identify the location of a memory cell.
 - B) to allow multitasking.
 - C) to prevent multitasking.
 - D) to locate a program.
 - E) None of the above.

- 5) Creating a program requires many steps. Three of these are ____**C**____.
 - A) input, processing, and output
 - B) key words, operators, and punctuation

- C) program design, writing source code, and testing
- D) syntax, logic, and error handling
- E) None of the above

6) The ____D____ coordinates the computer's operations by fetching the next instruction and using control signals to regulate the other major computer components.

- A) arithmetic unit
- B) logic unit
- C) arithmetic and logic unit (ALU)
- D) control unit
- E) operating system

7) A(n) ____C____ is a set of instructions that tells the computer how to solve a problem.

- A) compiler
- B) linker
- C) program
- D) operator
- E) variable

8) A set of well-defined steps for performing a task or solving a problem is known as ____D____.

- A) a hierarchy chart
- B) a flowchart
- C) a solution engine
- D) an algorithm
- E) software engineering

9) Words with a special meaning that may be used only for their intended purpose are known as ____C____.

- A) low-level language
- B) programmer-defined identifiers
- C) key words
- D) syntax words
- E) None of the above

10) Mistakes that allow a program to run, but cause it to produce

erroneous results are called ____**B**____.

- A) syntax errors
- B) logic errors
- C) compiler errors
- D) linker errors
- E) None of the above

Chapter 2

11) The ____**C**____ directive causes the contents of another file to be inserted into a program.

- A) #getfile
- B) #library
- C) #include
- D) All of the above
- E) None of the above

12) ____**A**____ are data items whose values cannot change while the program is running.

- A) Constants
- B) Variables
- C) Comments
- D) Integers
- E) None of the above

13) Which of the following is/are valid C++ identifiers? **C**

- A) June-2010
- B) June 2010
- C) June_2010
- D) 2010June
- E) Both C and D are valid identifiers, but A and B are not.

14) A C++ character constant (character literal) is enclosed in _____ quotation marks, whereas a string constant (string literal) is enclosed in _____ quotation marks.**D**

- A) double, single
- B) triple, double
- C) open, closed
- D) single, double

E) no, some

15) The bool data type ____**B**____.

- A) can be used to store a single character
- B) has only two values: true and false
- C) is used to store extra large numbers
- D) is used to represent numbers in E notation
- E) does none of the above

16) Every C++ program must have ____**D**____.

- A) comments
- B) variables
- C) constants
- D) a function called main.
- E) All of the above

17) In programming terms, a group of characters inside a set of double quotation marks (" ") is called **E**

- A) a character constant.
- B) a string constant.
- C) a string literal.
- D) All of the above.
- E) either B or C, but not A

18) Which of the following is/are valid C++ identifiers? **E**

- A) department_9
- B) aVeryLongVariableName
- C) last.name
- D) All of the above are valid identifiers.
- E) Both A and B are valid identifiers, but C is not.

19) ____**B**____ must be included in a program in order to use the cout object.

- A) Opening and closing braces
- B) The iostream header file
- C) A cout declaration
- D) Strings
- E) None of the above

20) An operation that copies a value into a variable is called a(n) _____ operation. **A**

- A) assignment
- B) equals
- C) copy
- D) declaration
- E) cout

Chapter 3

21) ____**B**____ causes a program to wait until information is typed at the keyboard and the Enter key is pressed.

- A) An input device
- B) The cin object
- C) The cout object
- D) A preprocessor
- E) Nothing

22) The _____ operator always follows the cin object, and the _____ operator follows the cout **C** object.

- A) input, endl
- B) getChar, printChar
- C) >> , <<
- D) >> , >>
- E) << , >>

23) Program code that can be evaluated to a value is called a(n) ____**E**____.

- A) operation
- B) line
- C) evaluator
- D) result
- E) expression

24) In C++, a value can be raised to a power by using ____**D**____.

- A) the ^ operator
- B) the exp operator

- C) the power operator
- D) the pow function
- E) the square function

25) Which of the following expressions will evaluate to 2.5? **E**

- A) `static_cast<double>(5 / 2)`
- B) `static_cast<double>(5) / 2`
- C) `5 / static_cast<double>(2)`
- D) All three of the above
- E) Both B and C, but not A

26) The **C** stream manipulator can be used to establish a field width for the value immediately following it.

- A) `cin`
- B) `setField`
- C) `setw`
- D) `iomanip`
- E) `width`

27) When an arithmetic expression contains two or more different operators, such as * and +, the order in which the operations is done is determined by **B**.

- A) left to right order
- B) operator precedence
- C) operator associativity
- D) the programmer
- E) the compiler

28) The statement `cout << setw(4) << num4 << " "`; **E**.

- A) outputs the value of num4 rounded to 4 decimal places.
- B) outputs "setw(4)" before the value in the variable num4.
- C) outputs the first 4 digits of the number stored in num4.
- D) outputs the value stored in num4 four times.
- E) does none of above.

29) To use the `sqrt()` function, or other mathematical library functions, you must `#include` the **C** header file in your program.

- A) `iostream`
- B) `iomanip`
- C) `cmath`
- D) `algebra`
- E) `mathlib`

30) The `cin` object must be followed by ____**D**____.

- A) a single stream insertion (`<<`) operator
- B) one or more stream insertion operators (`<<`)
- C) a single stream extraction (`>>`) operator
- D) one or more stream extraction (`>>`) operators
- E) no operators

Part2 填充(10%, 2 for each)

FALSE 1) True/False: If `number` has been defined as an `int` variable, both of the following statements will print out its value:

```
cout << number;  
cout << "number";
```

2) The expression `5 % 2` evaluates to ____**1**____.

TRUE 3) True/False: The following two statements will assign the same value to `result`.

```
result = a + b * c;  
result = b * c + a;
```

TRUE 4) True/False: When an operator's operands are of different data types, such as `int` and `double`, C++ automatically converts one of them so that they are the same data type.

FALSE 5) True/False: If the value of `dollars` is 5.0, the following statement will output 5.00 to the monitor:

```
cout << fixed << showpoint << setprecision(4)  
    << dollars << endl;
```

Part3 Coding(60%)

1. (10%)write a program that calculates how much a student organization earns during its fund raising candy sale. The program should prompt the user to enter the number of candy bars sold and the amount the organization earns for each bar sold. It should then calculate and display the total amount earned.
2. (10%)Write a program that displays the following pattern on the screen:

```
  *
 ***
*****
*****
*****
 ***
  *
```

3. (10%)Kathryn bought 600 shares of stock at a price of \$21.77 per share. A year later she sold them for just \$16.44 per share. Write a program that calculates and displays the following:
 - The total amount paid for the stock.
 - The total amount received from selling the stock.
 - The total amount of money she lost.
4. (10%)Write a program that will convert U.S. dollar amounts to Japanese yen and to euros, storing the conversion factors in the constant variables YEN_PER_DOLLAR and EUROS_PER_DOLLAR. To get the most up-to-date exchange rates, search the Internet using the term “currency exchange rate” or “currency converter”. If you cannot find the most recent exchange rates, use the following:
1 Dollar = .952 Yen
1 Dollar = .7175 Euros
5. (20%) The monthly payment on a loan may be calculated by the following formula:

$$\text{Payment} = \frac{\text{Rate} * (1 + \text{Rate})^N}{(1 + \text{Rate})^N - 1} * L$$

Rate is the monthly interest rate, which is the annual interest rate divided by 12. (A 12 percent annual interest would be 1 percent monthly interest.) N is the number of payments and L is the amount of the loan. Write a program that asks for these values and displays a report similar to the following:

Loan Amount: \$ 10000.00
Monthly Interest Rate: 1%
Number of Payments: 36
Monthly Payment: \$ 332.14
Amount Paid Back: \$ 11957.15
Interest Paid: \$ 1957.15

程式參考解答(依序 1~5) //為註解

```
#include <iostream>
using namespace std;

int main()
{
    double numSold, earningsPerBar, totalEarnings;

    // Get the number of candy bars sold.
    cout << "How many candy bars were sold? ";
    cin >> numSold;

    // Get the amount earned per bar sold.
    cout << "How much is earned for each bar sold? ";
    cin >> earningsPerBar;

    // Calculate the total earnings.
    totalEarnings = numSold * earningsPerBar;

    // Display the total earnings.
    cout << "You have earned $" << totalEarnings << endl;
    return 0;
}
```

```
#include <iostream>
using namespace std;
```

```

int main()
{
    cout << "        *    \n"
          << "        ***   \n"
          << "        ***** \n"
          << "        ******** \n"
          << "        ***** \n"
          << "        ***    \n"
          << "        *     \n";

    return 0;
}

```

```

#include <iostream>
using namespace std;

int main()
{
    int numShares = 600;           // Number of shares of
    stock
    double unitPerchasePrice = 21.77; // Price paid per share
    when bought
    double unitSellPrice = 16.44;    // Price received per
    share when sold
    double totalPurchasePrice;       // Total paid for all the
    stock shares
    double totalSellPrice;           // Total received for all
    the stock shares
    double loss;                    // Amount of money lost

    // Compute total purchase price, total selling price, and
    amount lost
    totalPurchasePrice = numShares * unitPerchasePrice;
    totalSellPrice = numShares * unitSellPrice;
    loss = totalPurchasePrice - totalSellPrice;

    // Display the results
    cout << "Amount paid to buy the stock:          $" <<
    totalPurchasePrice << endl;
}

```

```

        cout << "Amount received from selling the stock: $ " <<
totalSellPrice << endl;
        cout << "Amount of money lost on the transaction: $ " << loss
<< endl;

        return 0;
}

```

```

#include <iostream>
#include <iomanip>
using namespace std;

int main()
{
    const double YEN_PER_DOLLAR = 90.0,    // Dollars to yen
conversion factor
                EUROS_PER_DOLLAR = .7175; // Dollars to euros
conversion factor

    double dollars,                        // Dollar amount to
convert
                yen,                        // Equivalent in
Japanese yen
                euros;                     // Equivalent in euros

    // Get dollar amount to convert
    cout << "Amount of U.S. currency to convert: $";
    cin >> dollars;

    // Perform conversions
    yen = dollars * YEN_PER_DOLLAR;
    euros = dollars * EUROS_PER_DOLLAR;

    // Display results
    cout << fixed << showpoint << setprecision(2);
    cout << "\n$" << dollars << " = " << yen << " yen and "
        << euros << " euros.\n";

    return 0;
}

```

```

}

#include <iostream>
#include <iomanip>
#include <cmath>
using namespace std;

int main()
{
    double loanAmt,          // Amount of the loan
           intRate,          // Annual interest rate of the loan
           monIntRate,       // Monthly interest rate
           monPayment,       // Monthly payment
           totIntPaid,       // Total interest paid over life of loan
           totAmtPaid;       // Total amount paid over life of loan

    int numPayments;         // Number of payments

    // Get input from user
    cout << "Loan amount: $";
    cin  >> loanAmt;
    cout << "Annual interest rate (in the format .12 (for 12%): ";
    cin  >> intRate;
    cout << "Number of monthly payments to be made: ";
    cin  >> numPayments;

    // Calculate monthly interest rate, amount of the monthly
    payment,
    // total amount paid, and total interest paid
    monIntRate = intRate / 12;
    monPayment = (monIntRate * pow((1 + monIntRate), numPayments) /
                  (pow((1 + monIntRate), numPayments) - 1)) *
    loanAmt;
    totAmtPaid = monPayment * numPayments;
    totIntPaid = totAmtPaid - loanAmt;

    // Display results
    cout << "\n -- Loan Report --\n\n";
    cout << fixed << showpoint << setprecision(2);

```

```
    cout << "Loan Amount:          $" << setw(9) << loanAmt <<
endl;
    cout << "Monthly Interest Rate:  " << setw(8) << (monIntRate *
100)
        << "%" << endl;
    cout << "Number of Payments:      " << setw(9) << numPayments
<< endl;
    cout << "Monthly Payment:         $" << setw(9) << monPayment <<
endl;
    cout << "Amount Paid Back:         $" << setw(9) << totAmtPaid <<
endl;
    cout << "Interest Paid:           $" << setw(9) << totIntPaid <<
endl;

    return 0;
}
```