EE2310 C++程式設計 HW 1 (Ch 1,2,3) due: 3/21/2019

Part1 選擇 (30%, 1% for each)

1) The term **hardware** refers to \_\_\_\_\_\_\_\_.

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

B

2) At the heart of a computer is its central processing unit (CPU). The CPU's job is to \_\_\_\_\_\_\_\_.

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

D

3) An integrated development environment (IDE) normally includes \_\_\_\_\_\_\_\_.

A) a text editor

B) a compiler

C) a debugger

D) All of the above

E) None of the above

D

4) The purpose of a memory address is \_\_\_\_\_\_\_\_.

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.

A

5) Internally, the central processing unit (CPU) consists of two parts \_\_\_\_\_\_\_\_.

A) input devices and output devices

B) software and hardware

C) the arithmetic and logic unit (ALU) and the control unit

D) single-task devices and multi-task devices

E) the compiler and the linker

C

6) The \_\_\_\_\_\_\_\_ 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

D

7) A variable definition always specifies the name of a variable and tells \_\_\_\_\_\_\_\_.

A) what type of data it can hold

B) how many times it will be used in the program

C) the part of the code where it will be used

D) what its starting value is

E) All of the above

A

8) Three primary activities of a program are \_\_\_\_\_\_\_\_.

A) creating variables, operators, and key words

B) executing lines, statements, and key words

C) input, processing, and output

D) reading, writing, and arithmetic

E) compiling, linking, and debugging

C

9) Mistakes that allow a program to run, but cause it to produce erroneous results are called \_\_\_\_\_\_\_\_.

A) syntax errors

B) logic errors

C) compiler errors

D) linker errors

E) None of the above

B

10) #include <iostream> is an example of a(n) \_\_\_\_\_\_\_\_.

A) comment

B) I/O statement

C) preprocessor directive

D) stream directive

E) compiler option

C

11) A C++ character constant (character literal) is enclosed in \_\_\_\_\_\_\_\_ quotation marks, whereas a string constant (string literal) is enclosed in \_\_\_\_\_\_\_\_ quotation marks.

A) double, single

B) triple, double

C) open, closed

D) single, double

E) no, some

D

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

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.

C

13) What value will be assigned to the variable number by the following statement?

int number = 7.8;

A) 7

B) 8

C) 7.8

D) None of the above.

E) It's unpredictable. That's the problem.

A

14) The expression 5 / 2 evaluates to \_\_\_\_\_\_\_\_.

A) 1

B) 2

C) 2.5

D) 5.2

E) 10

B

15) True/False: The following two C++ statements perform the same operation.

regWages = regPay + overTime;

egPay + overTime = regWages;

1. True
2. False

B

16) An operation that copies a value into a variable is called a(n) \_\_\_\_\_\_\_\_operation.

A) assignment

B) equals

C) copy

D) declaration

E) cout

A

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

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.

E

18) Every C++ program must have \_\_\_\_\_\_\_\_.

A) comments

B) variables

C) constants

D) a function called main.

E) All of the above

D

19) The \_\_\_\_\_\_\_\_ operator always follows the cin object, and the \_\_\_\_\_\_\_\_ operator follows the cout

object.

A) input, endl

B) getChar, printChar

C) >> , <<

D) >> , >>

E) << , >>

C

20) Which of the following expressions will evaluate to 2.5?

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

E

21) The \_\_\_\_\_\_\_\_ 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

C

22) Before a program can read data from a file, which of the following must be true?

A) The file must exist and data to be read from it must have been previously stored in it.

B) There must be a #include <fstream> directive in the program.

C) The program must define a file stream object to associate with the file.

D) The file must be opened.

E) All the above statements must be true.

E

23) The statement cout << setw(4) << num4 << " "; \_\_\_\_\_\_\_\_.

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.

E

24) 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;

A) True

B) False

B

25) What does the following C++ expression evaluate to?

6 - 6 / 3 + 3

A) 0

B) 1

C) 3

D) 7

E) None of the above

D

26) A variable must be defined \_\_\_\_\_\_\_\_.

A) in every program

B) and initialized at the same time

C) once it has been used

D) before it can be used

E) in order to perform output

D

27) Program code that can be evaluated to a value is called a(n) \_\_\_\_\_\_\_\_.

A) operation

B) line

C) evaluator

D) result

E) expression

E

28) Which of the following will allow an entire line of text to be read into a string object, even if it contains embedded blanks?

A) getline()

B) cin >>

C) cin.get()

D) cin.ignore()

E) both A and B

A

29) Before a program can read data from a file, which of the following must be true?

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C) The program must define a file stream object to associate with the file.

D) The file must be opened.

E) All the above statements must be true.

E

30) The following 4 lines of C++ code, use strings.

string firstName; // Define a string object

char lastName[7]; // Define a C-string

firstName = "Abraham"; // Assign a value to the string object

lastName = "Lincoln"; // Assign a value to the C-string

Which of the following statements is true?

A) The string object is defined incorrectly because no size is given for it.

B) The 2 string definitions are correct, but the 2 assignment statements are wrong.

C) The string object is assigned a value correctly, but the C-string is not.

D) The C-string is assigned a value correctly, but the string object is not.

E) All 4 lines of code are correct.

C

Part2 填充 (10%, 2% for each)

1. True/False: Once a value has been stored in a variable it cannot be changed.

Answer: False

1. True/False: A variable of the char data type holds a set of characters like "January".

Answer: False

1. The expression 5 % 2 evaluates to \_\_\_\_\_\_\_\_.

Answer: 1

1. True/False: The following pair of C++ statements is legal.

const double taxRate;

taxRate = .05;

Answer: False

1. True/False: The following C++ statement will assign 1.5 to the result variable.

int result = 3.0 / 2.0;

Answer: False

Part 3 Coding (60%)

1. (10%)Write a program that calculates how much a little league baseball team spent last year to purchase new baseballs. The program should prompt the user to enter the number of baseballs purchased and the cost of each baseball. It should then calculate and display the total amount spent to purchase the baseballs.

#include <iostream>

using namespace std;

int main()

{

int number, baseball, spent;

cout << "Last year, what is the number of baseball we bought? ";

cin >> number;

cout << "How much each of the baseball is?";

cin >> baseball;

spent = number \* baseball;

cout << "Totally,we spent " << spent << " dollars to purchase new baseballs last year! ";

return 0;

}

1. (10%)Write a program that displays the following pattern on the screen:



#include <iostream>

#include <iomanip>

using namespace std;

int main()

{

string stars;

int numStars;

numStars = 1 ;

stars.assign(numStars, '\*');

cout << setw(4) << stars << setw(3)<< endl;

numStars += 2;

stars.assign(numStars, '\*');

cout << setw(5)<< stars << endl;

numStars += 2;

stars.assign(numStars, '\*');

cout << setw(6) << stars << endl;

numStars += 2;

stars.assign(numStars, '\*');

cout << stars << endl;

numStars -= 2;

stars.assign(numStars, '\*');

cout << setw(6) << stars << endl;

numStars -= 2;

stars.assign(numStars, '\*');

cout << setw(5) << stars << endl;

numStars -= 2;

stars.assign(numStars, '\*');

cout << setw(4) << stars << endl;

return 0;

}

1. (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.

#include <iostream>

using namespace std;

int main()

{

int number\_share;

double per\_share, total\_paid, total\_received, total\_lost;

per\_share = 21.77;

number\_share = 600;

total\_paid = per\_share \* number\_share;

cout << "The total amount paid for the stock is " << total\_paid << endl;

per\_share = 16.44;

number\_share = 600;

total\_received = per\_share \* number\_share;

cout << "The total amount received from selling the stock is " << total\_received << endl;

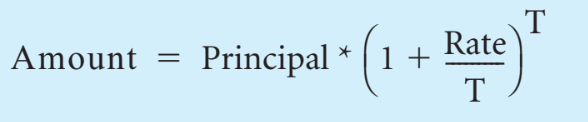
total\_lost = total\_received - total\_paid;

cout << "The total amount of money she lost is " << total\_lost << endl;

return 0;

}

1. (15%)Assuming there are no deposits other than the original investment, the balance in a savings account after one year may be calculated as



where Principal is the balance in the account, Rate is the annual interest rate, and T is the number of times the interest is compounded during a year. (e.g., T is 4 if the interest is compounded quarterly.)

Write a program that asks for the principal, the interest rate, and the number of times the interest is compounded. It should display a report similar to the following:

Interest Rate: 4.25%

Times Compounded: 12

Principal: $ 1000.00

Interest: $ 43.33

Final balance: $ 1043.33

#include <iostream>

#include <cmath>

using namespace std;

int main()

{

double Interest\_Rate, Times\_Compounded, Principal, Interest, Final\_balance, Amount;

cout << "What is the interest rate of your account? ";

cin >> Interest\_Rate;

cout << "What is the times compounded you have? ";

cin >> Times\_Compounded;

cout << "What is the principal you have? " ;

cin >> Principal;

Amount = Principal \* pow(( 1 + Interest\_Rate / Times\_Compounded), Times\_Compounded );

Interest = Amount - Principal;

Final\_balance = Amount;

cout << "So, now we know that\n";

cout << "Interest Rate: " << Interest\_Rate <<endl;

cout << "Times Compound: " << Times\_Compounded << endl;

cout << "Principal: " << Principal << endl;

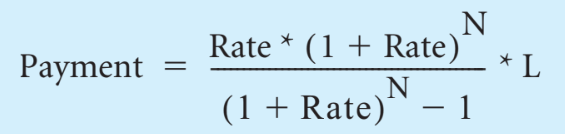
cout << "Interest: " << Interest << endl;

cout << "Final balance: " << Final\_balance << endl;

return 0;

}

1. (15%) The monthly payment on a loan may be calculated by the following formula:



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

#include <iostream>

#include <cmath>

using namespace std;

int main()

{

double Loan\_Amount, Monthly\_Interest\_Rate, Number\_of\_Payments, Monthly\_payment, Amount\_paid\_Back, Interest\_Paid;

cout << "What is your loan amount? ";

cin >> Loan\_Amount;

cout << "What is the monthly payment rate? ";

cin >> Monthly\_Interest\_Rate;

cout << "What is the number of payments? ";

cin >> Number\_of\_Payments;

Monthly\_payment = (Monthly\_Interest\_Rate \* pow(( 1 + Monthly\_Interest\_Rate), Number\_of\_Payments)) / ((pow((1 + Monthly\_Interest\_Rate),Number\_of\_Payments))-1) \* Loan\_Amount;

Amount\_paid\_Back = Monthly\_payment \* Number\_of\_Payments;

Interest\_Paid = Monthly\_payment \* Number\_of\_Payments - Loan\_Amount ;

cout << "So, we know that\n";

cout << "Loan Amount: " << Loan\_Amount << endl;

cout << "Monthly Interest Rate: " << Number\_of\_Payments << endl;

cout << "Monthly Payment: " << Monthly\_payment << endl;

cout << "Amount Paid Back: " << Amount\_paid\_Back << endl;

cout << "Interest Paid: " << Interest\_Paid << endl;

return 0;

}