**EE2310 C++程式設計 HW9 (Ch 13) Due 6/13/2019**

**A. True/False是非題:15%**

是非題:

1. True/False: When you assign a name to a file, the operating system identifies the file by that name.

T

2. True/False: The stream member function fail()can be used to determine whether the last operation performed on a stream was successful.

T

3. True/False: When you store data in a variable, it is automatically saved in a file.

F

4. True/False: Only one file stream object can be declared per C++ program.

F

5. True/False: An alternative to using the open member function is to use the file stream object declaration itself to open the file.

Example: fstream dataFile("names.dat",ios::in|ios::out);

T

6. True/False: File output may be formatted the same way as screen output.

T

7. True/False: The read and write member functions of fstream objects can only work with buffers specified by pointers to char.

T

8. True/False: string objects cannot be stored to a binary file without further processing because they contain pointers.

T

9. True/False: Opening a file with the flags ios::in | ios::out will preserve the contents of the file if the file already exists.

F

10. True/False: To write to a binary file, you can use the write() member function of an ofstream object.

T

11. True/False: The ios::hardfail bit is set when an unrecoverable error occurs

T

12. True/False: When pass a file object as parameter to a function, either pass by value or pass by reference can be used.

F

13. True/False: When you write

ifstream inStream;

inStream.open(”infile.dat”);

the file, infile.dat must be located in the directory where the program is being run.

F

14. True/False: An input stream is a stream of data flowing from your program, either to a file, or to the keyboard.

F

15. True/False: A file is automatically closed when a program terminates, so there is never a need to close a file.

F

**B. Choice選擇題:30%**

**1.** Data stored \_\_\_\_\_\_\_\_ is lost when the computer is powered down.

A) on CD ROM

B) in RAM

C) on a backup tape

D) on the hard disk

E) None of the above

**B**

**2.** The \_\_\_\_\_\_\_\_ data type can be used to create files and write information to them.

A) ofstream

B) ifstream

C) istream

D) ostream

E) None of the above

**A**

**3.** Which statement opens a file and links it to a file stream object?

A) open(AFile) = link(anObject);

B) file.open("filename.txt");

C) linkstream("filename.txt");

D) link(open(filename.txt"));

E) None of the above

**B**

**4.** The process of writing in-memory objects to a file so that the object can later be read back into memory

A) requires the use of specialized convert constructors

B) is called serialization

C) requires special operation system support

D) is called deserialization

E) None of the above

B

**5.** A file \_\_\_\_\_\_\_\_ is a small holding section of memory that file-bound information is first written to.

A) name

B) number

C) buffer

D) segment

E) None of the above

**C**

**6.** The statement dataFile.close(); \_\_\_\_\_\_\_\_.

A) is illegal in C++

B) needs a file name argument to execute correctly

C) closes a file

D) is legal but risks losing valuable data

E) None of the above

**C**

**7.** The \_\_\_\_\_\_\_\_ may be used to write information to a file.

A) cout object

B) pen object

C) stream insertion operator <<

D) fileWrite() function

E) None of the above

**C**

**8.** The operation of moving to a particular location in an input file is accomplished through \_\_\_\_\_\_\_\_.

A) the seekg member function

B) the seekp member function

C) the move member function

D) the locate member function

E) None of the above

**A**

**9.** The \_\_\_\_\_\_\_\_ member function reports when the end of a file has been found.

A) end()

B) stop()

C) done()

D) eof()

E) None of the above

D

**10.** The state bit, \_\_\_\_\_\_\_\_, can be tested to see if the end of an input stream has been encountered.

A) ios::eof

B) ios::eofbit

C) ios::failbit

D) ios::badbit

E) None of the above

**B**

**11.** The member function, \_\_\_\_\_\_\_\_, reads a single character from a file.

A) read

B) get

C) put

D) input

E) None of the above

**B**

**12.** The \_\_\_\_\_\_\_\_ function can be used to store binary data to a file.

A) binary.out

B) write

C) put

D) dataout(binary)

E) None of the above

**B**

**13.** To access files from a C++ program, you must #include \_\_\_\_\_\_\_\_.

A) <fileaccess>

B) <filestream>

C) <fstream>

D) <iostream>

E) None of the above

c

**14.** To set up a file to perform file I/O, you must declare \_\_\_\_\_\_\_\_.

A) at least one variable to write to the file

B) one or more file stream objects

C) a string array to store the file contents

D) All of the above

E) None of the above

B

**15.** ofstream, ifstream, and fstream are \_\_\_\_\_\_\_\_.

A) header files

B) libraries

C) data types

D) string arrays

E) None of the above

**C**

**16.** A file must be \_\_\_\_\_\_\_\_ before data can be written to or read from it.

A) closed

B) opened

C) declared

D) initialized

E) None of the above

**B**

**17.** The \_\_\_\_\_\_\_\_ data type can be used to connect to files and read information from them into memory.

A) ofstream

B) istream

C) ifstream

D) instream

E) None of the above

**c**

**18.** Outside of a C++ program, a file is identified by its \_\_\_\_\_\_\_\_. Inside a C++ program, a file is accessed through a \_\_\_\_\_\_\_\_.

A) file number, file name

B) file name, file number

C) name, address

D) name, file stream object

E) None of the above

**D**

**19.** When used by itself, \_\_\_\_\_\_\_\_ causes a file's contents to be deleted if the file already exists.

A) ios:app

B) ios::in

C) ios::out

D) All of the above

E) None of the above

C

**20.** Which statement opens a file in such a way that information will only be written to its end?

A) dataFile(open.append("info.dat");

B) dataFile.open("info.dat", ios::out | ios::app);

C) dataFile.open = "C:\\info.dat" ios:append;

D) open(dataFile.append);

E) None of the above

**B**

**21.** Closing a file causes any buffered information to be \_\_\_\_\_\_\_\_.

A) saved to the file

B) deleted

C) stored in a buffer for safekeeping

D) duplicated

E) None of the above

**A**

**22.** The operating system records the information that tracks the end of the file \_\_\_\_\_\_\_\_.

A) when a file is opened with ios::eof

B) when a file is opened with ios::app

C) when a file is closed

D) when the program ends

E) None of the above

**C**

**23.** The \_\_\_\_\_\_\_\_ may be used to read information from a file.

A) cout object

B) the stream insertion operator

C) file.in macro

D) stream extraction operator

E) None of the above

D

**24.** When a file is opened, the file stream object's "read position" is \_\_\_\_\_\_\_\_.

A) at the end of the file

B) at the beginning of the file

C) nonexistent, until the programmer declares it

D) in the middle of the file

E) None of the above

**B**

**25.** When the >> operator extracts information from a file, it expects to read data that are separated by \_\_\_\_\_\_\_\_.

A) commas

B) tabs

C) whitespace

D) semicolons

E) None of the above

C

**26.** All stream objects have \_\_\_\_\_\_\_\_ that indicate the condition of the stream.

A) error state bits

B) condition statements

C) markers

D) intrinsic error messages

E) None of the above

A

**27.** The state bit \_\_\_\_\_\_\_\_ is set when an attempted operation has failed.

A) ios::failbit

B) ios::badbit

C) ios::hardfail

D) ios::goodbit

E) None of the above

A

**28.** The member function \_\_\_\_\_\_\_\_ writes a single character to a file.

A) get

B) write

C) put

D) insert

E) None of the above

C

**29.** The term \_\_\_\_\_\_\_\_ means non-sequentially accessing information in a file.

A) cin.getline

B) cin.getrandom

C) random access

D) read.randomly

E) None of the above

C

**30.** Which of the following are correct ways to end a loop using a test for end-of-file?

A) while(inStream->next)

{ cout << next; }

B) while(inStream >> next)

{ cout << next; }

C) inStream.get(next)

while(!inStream.eof( ))

{ cout << next; inStream.get(next);}

D) inStream.get(next)

while(!eof(inStream))

{ cout << next; inStream.get(next);}

E) None of the above. You cannot control a loop using a test for end of file.

C

**C.程式題:55%**

1. **String Search (20%)**

Write a program that asks the user for the name of a text file and a string to search for. The program will search the file for all occurrences of the specified string and display all lines that contain the string. After all occurrences have been located, the program should report the **number of times** the string appeared in the file.

2. **Letter Frequencies (15%)**

The letter e is the most frequently used letter in English prose, and the letter z is the least frequently used. A friend of yours doing a sociology experiment believes that this may not necessarily be true of the writings of first-year college students. To test his theory, he asks you to write a program that will take a text file and print, for each letter of the English alphabet, the number of times the letter appears in the file.

Hint: Use an integer array of size 128, and use the values of letters to index into the array to store and retrieve counts for the letters.

3. **Insertion Sort on a File (20%)**

Write a program that uses an initially empty file to store a sorted list of records of people entered by the user. Each record should contain an array of 20 characters to hold the name of a person and an integer to hold the person’s age.

Each time the program is run, it opens the file and outputs the list of stored records onto the screen. The file should be sorted by alphabetic order of the names. The program then asks the user to enter a new record X (containing name and age). The program then looks at the record at the end of the file. If that record is less or equal to X (by alphabetic order of the names), the program stores X at the end of the file and closes the file. Otherwise, the program starts at the end of the file and works toward the beginning, moving each record in the file that is greater than X up by one until it reaches the position in the file where X should be stored. The program then writes record X at that position and closes the file.

For this program, in the beginning, you should enter the following 8 records in sequence:

"Becky Warren” 30

"Joe Looney” 25

"Geri Palmer” 45

"Lynn Presnell" 50

"Holly Gaddis" 60

"Sam Wiggins” 33

"Bob Kain" 25

"Tim Haynes" 30