**EE2310 C++程式設計 HW8 (Ch 12 string) Due 6/18/2020**

**A. True/False是非題:15%**

是非題:

1.True/False: A test using the isupper function will return zero if the argument is an uppercase character.

2. True/False: The isdigit function will return a nonzero value if its argument is a digit.

3. True/False: When using the strcat function, you must be careful not to overflow the bounds of the array allocated for the target string.

4. True/False: The C++ compiler performs strict array bounds checking whenever an array of characters is being accessed.

5. True/False: The itoa function is similar to atoi, but it works in reverse.

6. True/False: By being able to pass arrays as arguments, you can write your own functions for processing C-strings.

7. True/False: The library function changecase can be used to change the case of a letter.

8. True/False: Objects of the C++ string class use the += operator for concatenation (to append one string to another).

9. True/False: The following statement declares a string object and initializes it to "Once upon a time".

stringtheString("Once upon a time");

10. True/False: To account for the null terminator stored at the end of each C-string, the strlen function returns the number of characters in its argument, plus one.

11. True/False: There exist C++ stream classes that write and read in -memory strings.

12. True/False: To use the ostringstream class, you must include the memstringstream header file

13. True/False: The >> operator can be used to convert a value of type double to an equivalent string object stored in memory.

14. True/False: If an upper case character is passed as an argument to toupper, the result will be an upper case character.

15. True/False: Although C++ provides ample library functions to handle numeric values, we must write all of our own functions to manipulate character values.

**B. Choice選擇題:25%**

**1.** To test if a character is a printable character, use the \_\_\_\_\_\_\_\_ function.

A) isprint

B) isprintable

C) isprintok

D) isoktoprint

E) None of the above

**2.** The \_\_\_\_\_\_\_\_ is the escape sequence representing the null terminator.

A) \n

B) \t

C) \0

D) /NULL

E) None of the above

**3.** The null terminator stands for the ASCII code \_\_\_\_\_\_\_\_.

A) 57

B) 100

C) 1000

D) 0

E) None of the above

**4.** The \_\_\_\_\_\_\_\_ function accepts a C-string as an argument and returns the length of the string (not including the null terminator).

A) numchar

B) strlength

C) strlen

D) countstring

E) None of the above

**5.** The strcpy function's arguments are \_\_\_\_\_\_\_\_.

A) twostring class objects

B) two pointers to char

C) three pointers

D) three arrays and one pointer

E) None of the above

**6.** A library function that looks for the occurrence of one string inside another is \_\_\_\_\_\_\_\_.

A) strcmp

B) strstr

C) strfind

D) strsearch

E) None of the above

**7.** A good way to convert a value of type double to a string is \_\_\_\_\_\_\_\_.

A) use theostringstreamclass

B) use thestrtodoublefunction

C) use the doubletoa function

D) use thedoublestringstreamclass

E) None of the above

**8.** The \_\_\_\_\_\_\_\_ function converts a C-string to an integer and returns the integer value.

A) atoint

B) strtoint

C) strint

D) atoi

E) None of the above

**9.** Which statements convert the string "10" to the integer value 10?

A) istringstreamistr("10"); int x; istr>> x;

B) ostringstreamostr("10"); int x; ostr>> x;

C) int x = stoi("10");

D) int x = str("10"):

E) None of the above

**10.** The \_\_\_\_\_\_\_\_ function will return true if its argument is a printable character other than a digit, letter, or space.

A) isprint

B) ispunct

C) ischar

D) isnotdls

E) None of the above

**11.** The expression !isdigit(ch) evaluates to nonzero if ch is \_\_\_\_\_\_\_\_.

A) an alphabetic character

B) 9

C) &

D) both A and C

E) None of the above

**12.** Which of the following is considered whitespace?

A) The tab character '\t'

B) The new line character '\n'

C) The blank character ' '

D) All of the above

E) None of the above

**13.** To test if a character entered is a letter of the alphabet, use the \_\_\_\_\_\_\_\_ function.

A) isdigit

B) fromkeyboard

C) alphaok

D) isalpha

E) None of the above

**14.** To test if a character is a whitespace character, use the \_\_\_\_\_\_\_\_ function.

A) iswhite

B) isspace

C) iswhitespace

D) isblank

E) None of the above

**15.** To change a character argument from lower to upper case, use the \_\_\_\_\_\_\_\_ function.

A) isupper

B) toupper

C) tocaps

D) fromlower

E) None of the above

**16.** The output of the statement cout<<static\_cast<char>(tolower(toupper('Z'))); is \_\_\_\_\_\_\_\_.

A) upper case Z

B) lower case z

C) a lower case z followed by an upper case Z

D) a compiler error

E) None of the above

**17.** A C-string is a sequence of characters stored in consecutive memory, terminated by a \_\_\_\_\_\_\_\_.

A) period

B) space

C) null character

D) semicolon

E) None of the above

**18.** To use the strlen function in a program, you must #include \_\_\_\_\_\_\_\_.

A) <strlen>

B) <iostring>

C) <cstring>

D) <stringlib>

E) None of the above

**19.** The \_\_\_\_\_\_\_\_ function concatenates the contents of one string with another string.

A) strcopy

B) strappend

C) strcat

D) stradd

E) None of the above

**20.** The function \_\_\_\_\_\_\_\_ accepts pointers to two strings and an integer argument, which indicates how many characters to copy from the second string to the first.

A) strcpy

B) strncpy

C) copystring

D) strintcpy

E) None of the above

**21.** After num = atoi("1000"); executes, what value is stored in the variable num?

A) 1000

B) 999 (1000 minus 1 for the null terminator)

C) "1000"

D) "thousand"

E) None of the above

**22.** To change a lower case character to an upper case character, use the \_\_\_\_\_\_\_\_ function.

A) atoi

B) itoa

C) ltou

D) toupper

E) None of the above

**23.** The \_\_\_\_\_\_\_\_ library function reverses the order of a character array.

A) reverstr

B) strrev

C) reversit

D) backward

E) None of the above

**24.** To declare an array that will store students' last names of up to 25 characters in length, which is an appropriate statement?

A) charlastName[25];

B) stringlastName[25];

C) charlastName[26];

D) stringlastName[24];

E) None of the above

**25.** The statements char var1 = tolower('A'); cout<< "A"; will result in \_\_\_\_\_\_\_\_.

A) var1 stores the character value 'A'

B) var1 stores the ASCII value for the character 'A'

C) A is output to the monitor

D) a is output to the monitor

E) None of the above

**C.程式題:60%**

**1. Check Writer (10%)**

Write a program that displays a simulated paycheck. The program should ask the user to enter the date, the payee’s name, and the amount of the check. It should then display a simulated check with the dollar amount spelled out, as shown here:

Date: 12/24/2012

Pay to the Order of: John Phillips $1920.85

One thousand nine hundred twenty and 85 cents

You may assume the amount is no greater than $10000. Be sure to format the numeric value of the check in fixed-point notation with two decimal places of precision. Be sure the decimal place always displays, even when the number is zero or has no fractional part. Use either C-strings or string class objects in this program.

**2. Word Counter (10%)**

Write a function that accepts a C-string as an argument and returns the number of words contained in the string. For instance, if the string argument is “Four score and seven years ago” the function should return the number 6. Demonstrate the function in a program that asks the user to input a string and then passes it to the function. The number of words in the string should be displayed on the screen.

**3. Word Separator (10%)**

Write a program that accepts as input a sentence in which all of the words are run together, but the first character of each word is uppercase. Convert the sentence to a string in which the words are separated by spaces and only the first word starts with an uppercase letter. For example the string “StopAndSmellTheRoses.” would be converted to “Stop and smell the roses.”

**4. replaceSubstring Function (10%)**

Write a function named replaceSubstring. The function should accept three C-string or string object arguments. Let’s call them string1, string2, and string3. It should search string1 for all occurrences of string2. When it finds an occurrence of string2, it should replace it with string3. For example, suppose the three arguments have the following values:

string1: "the dog jumped over the fence"

string2: "the"

string3: "that"

With these three arguments, the function would return a string object with the value “that dog jumped over that fence”. Demonstrate the function in a complete program.

**5. Password Verifier (10%)**

Imagine you are developing a software package that requires users to enter their own passwords. Your software requires that user’s passwords meet the following criteria:

• The password should be at least six characters long.

• The password should contain at least one uppercase and at least one lowercase letter.

• The password should have at least one digit.

Write a program that asks for a password and then verifies that it meets the stated criteria. If it doesn’t, the program should display a message telling the user why.

**6. Phone Number List (10%)**

Write a program that has an array of at least 10 string objects that hold people’s names and phone numbers. You may make up your own strings or use the following:

"Becky Warren, 678-1223"

"Joe Looney, 586-0097"

"Geri Palmer, 223-8787"

"Lynn Presnell, 887-1212"

"Holly Gaddis, 223-8878"

"Sam Wiggins, 486-0998"

"Bob Kain, 586-8712"

"Tim Haynes, 586-7676"

"Warren Gaddis, 223-9037"

"Jean James, 678-4939"

"Ron Palmer, 486-2783"

The program should ask the user to enter a name or partial name to search for in the array. Any entries in the array that match the string entered should be displayed. For example, if the user enters “Palmer” the program should display the following names from the list:

Geri Palmer, 223-8787

Ron Palmer, 486-2783