1. Given the declaration:  
   char string15[16];  
   Mark the following statements as valid or invalid. If a statement is invalid, explain why.

|  |
| --- |
| a. strcpy(string15, "Hello there");  **valid** |
| b. strlen(string15);  **invalid – string15 is not initialized and so strlen will non-sensical output** |
| c. string15 = "Jacksonville";  **invalid – c-strings are not assignable in this manner** |
| d. cin >> string15;  **valid** |
| e. cout << string15;  **invalid – string15 is not initialized and so outputting to stdout will give non-sensical output** |
| f. if (string15 >= "Nice day")  cout << string15;  **invalid – cannot compare a string literal to another string literal without using a comparison function** |
| g. string15[6] = 't'; |

**valid**

1. Given the declaration:  
   char str1[15];  
   char str2[15] = "Good day";  
   Mark the following statements as valid or invalid. If a statement is invalid, explain why.

|  |
| --- |
| a. str1 = str2;  **invalid – cannot assign a char array to a char array** |

|  |
| --- |
| b. if (str1 == str2)  cout << " Both strings are of the same length.\n";  **invalid – comparing c-strings does not compare their length** |
| c. if (strlen(str1) >= strlen(str2))  str1 = str2;  **invalid – cannot assign a char array to a char array** |
| d. if (strcmp(str1, str2) < 0)  cout << "str1 is less that str2." << endl;  **valid** |

1. Given the declaration:  
   char name[8] = "Shelly";  
   Mark the following statements as ‘‘Yes’’ if they output Shelly. Otherwise, mark the statement as ‘‘No’’ and explain why it does not output Shelly.

|  |
| --- |
| a. cout << name;  **yes** |
| b. for (int j = 0; j < 6; j++)  cout << name[j];  **yes** |
| c. int j = 0;  while (name[j] != '\0')  cout << name[j++];  **yes** |
| d. int j = 0;  while (j < 8)  cout << name[j++]; |

**yes**

1. Given the declaration:  
   char str1[21];  
   char str2[21];  
   a. Write a C++ statement that stores "Sunny Day" in str1.

**strcpy(str1, “Sunny Day”);**

b. Write a C++ statement that stores the length of str1 into the int variable length.

**int length = strlen(str1);**

c. Write a C++ statement that copies the value of name into str2.

**strcpy(str2, name);**

d. Write C++ code that outputs str1 if str1 is less than or equal to str2, and otherwise outputs str2.

**if(strcmp(str1, str2) < 0)**

**cout << str1;**

**else**

**cout << str2;**

1. Assume the following declarations:  
   char name[21];  
   char yourName[21];  
   char studentName[31];  
   Mark the following statements as valid or invalid. If a statement is invalid, explain why.

|  |
| --- |
| a. cin >> name;  **valid** |
| b. cout << studentName;  **valid** |
| c. yourName[0] = '\0';  **valid** |

|  |
| --- |
| d. yourName = studentName;  **invalid – cannot assign a char array to a char array** |
| e. if (yourName == name)  studentName = name;  **invalid – comparing c-strings with == does not compare their contents** |
| f. int x = strcmp(yourName, studentName);  **valid** |
| g. strcpy(studentName, name);  **invalid – studentName is larger in size than name and could write to invalid memory** |
| h. for (int j = 0; j < 21; j++)  cout << name[j]; |

**valid**

1. Write a statement that will convert the string “10” to an integer and store the result in the variable num.

**int num = atoi(“10”);**

1. Write a statement that will convert the string “100000” to a long and store the result in the variable num.

**long num = atol(“100000”);**

1. Write a statement that will convert the string “7.2389” to a double and store the result in the variable num.

**double num = atof(“7.2389”);**

1. How many char values are stored in the character array "Hello, World!\n"?

**15**

What is strlen("Hello, World!\n")? **14**