

The University of Alabama in Huntsville
Electrical & Computer Engineering
CPE 112 02
Fall 2001
Example Objective Questions for Final Exam

2. There is only one unique way to translate a given algorithm into a C++ program.
 10. An assembler is a program that translates an assembly language program into a high-level language.
21. The following series of steps is not an algorithm. How would you correct it?

Putting on a Pair of Athletic Shoes

Step 1. Put on one shoe.

Step 2. Tie the laces.

Step 3. Repeat.

- a. Exchange steps 1 and 2.
 - b. Exchange steps 2 and 3.
 - c. Change step 3 to "Repeat once."
 - d. Change step 1 to "Put on both shoes."
25. Which of the following terms describes the repetition of statements (instructions) while certain conditions are met?
 - a. sequence
 - b. selection
 - c. looping
 - d. subprogram
 33. Which problem-solving technique involves the breaking up of a large problem into smaller units that are easier to handle?
 - a. divide and conquer
 - b. means-ends analysis
 - c. solving by analogy
 - d. the building-block approach
 - e. merging solutions
 46. _____ is the language made up of binary-coded instructions that are used directly by the computer.
 52. The _____ is the set of programs that manages all of a computer's resources.
 48. A(n) _____ is a program that translates a high-level language program into machine code.
 3. A C++ identifier cannot start with a digit.
 4. The C++ compiler considers the identifier `CanOfWorms` to be the same as the identifier `canofworms`.

14. If a program compiles successfully, it is guaranteed to execute correctly.
15. Which of the following statements about the C++ `main` function is *false*?
- Every program must have a function named `main`.
 - Program execution begins with the first executable statement in the `main` function.
 - The `main` function must call (invoke) at least one other function.
 - The word `int` in the function heading means that the `main` function returns an integer value (to the operating system).
20. Which one of the following is *not* a valid identifier in C++?
- `myName`
 - `little`
 - `x123Y`
 - `Go Home`
 - `IdEnTiFiEr`
22. Which of the following can be assigned to a `char` variable?
- `ÔtÕ`
 - `Ô2Õ`
 - `Ô§Õ`
 - All of the above
24. In C++, the phrase "standard output device" usually refers to:
- the keyboard
 - a floppy disk drive
 - the display screen
 - a CD-ROM drive
 - none of the above
25. Which of the following statements prints `HappyBirthday` on one output line?
- ```
cout << "Happy" << endl;
cout << "Birthday" << endl;
```
  - ```
cout << "Happy";
cout << "Birthday" << endl;
```
 - ```
cout << "HappyBirthday" << endl;
```
  - b and c above
  - a, b, and c above
28. A(n) \_\_\_\_\_ is a location in memory, referenced by an identifier, in which a data value that can be changed is stored.
33. The first line of a C++ function is known as the function \_\_\_\_\_.
35. A(n) \_\_\_\_\_ is a statement that stores the value of an expression into a variable.

36. A(n) \_\_\_\_\_ is a statement that associates an identifier with a data object, a function, or a data type so that the programmer can refer to that item by name.

2. In C++, the modulus operator (%) requires integer operands.

5. In C++, the value of the expression `3 + 2 * 6` is 15.

6. Execution of the statement

```
someInt = 3 * int(someFloat);
```

does not change the contents of the variable `someFloat` in memory.

9. In C++, the expression `(a*+*b*/*c)*/*2` is implicitly parenthesized as `((a*+*b)*/*c)*/*2`.

10. Integer values and floating point values are stored differently inside the computer.

21. Among the C++ operators `+`, `-`, `*`, `/`, and `%`, which ones have the *lowest* precedence?

- a. `+` and `-`
- b. `*` and `/`
- c. `*`, `/`, and `%`
- d. `+`, `-`, and `%`
- e. `+`, `-`, and `*`

23. Assuming all variables are of type `float`, the C++ expression for  $(a+b)c$  is:

$d+e$

- a. `a + b * c / d + e`
- b. `(a + b) * c / d + e`
- c. `(a + b) * c / (d + e)`
- d. `(a + b * c) / d + e`
- e. `(a + b) c / (d + e)`

27. Given that `x` is a `float` variable and `num` is an `int` variable containing the value 38, what will `x` contain after execution of the following statement:

```
x = num / 4 + 3.0;
```

- a. 12.5
- b. 13
- c. 12
- d. 12.0
- e. nothing a compile-time error occurs

29. If the `int` variables `int1` and `int2` contain the values 4 and 5, respectively, then the value of the expression `float(int1 / int2)` is:

- a. 0.8
- b. 0
- c. 0.0
- d. 1.0

- e. 1
32. If `DoSomething` is a void function that takes an `int` expression as a parameter, which of the following is an *incorrect* statement? (Assume all variables are `int` variables.)
- `DoSomething(n);`
  - `DoSomething(3*n + 24);`
  - `length = DoSomething(width);`
  - b and c above
  - a, b, and c above
33. What is the output of the following program fragment?

```
cout << "Barrel" << endl;
cout << ' ';
cout << "of";
cout << "Laughs" << endl;
```

- Barrel of  
Laughs
  - Barrel  
of Laughs
  - Barrel  
of  
Laughs
  - Barrel  
of Laughs
  - Barrel  
ofLaughs
36. What is the output of the following program fragment? (`x` is a `float` variable.)

```
x = 25.6284;
cout << "***" << setw(6) << setprecision(1) << x << endl;
```

- \*\*25.6284
  - \*\* 25.628400
  - \*\*25.628
  - \*\* 25.6
  - \*\*25.6
40. Give a C++ arithmetic expression that computes the average of the `float` variables `score1`, `score2`, and `score3`: \_\_\_\_\_
44. The implicit (automatic) conversion of a value from one data type to another is called \_\_\_\_\_.
51. A(n) \_\_\_\_\_ is a function that returns a single value to its caller and is invoked from within an expression.
2. A one-dimensional array is an example of a structured data type.
5. An individual array component can be passed as a parameter to a function.
10. Given the declaration

```
int beta[20];
```

the expression `beta[3]` accesses the third component of the array.

11. Given the declaration

```
int beta[20];
```

the statement

```
cout << beta;
```

cannot be used to output all 20 elements of the array.

14. C++ does not check for out-of-bounds array indices while a program is running.

16. If the word `const` precedes the declaration of an array in a function heading, the function is prevented from modifying the array.

19. The array declared as

```
float angle[10][25];
```

has 10 rows and 25 columns.

34. Given the declaration

```
float alpha[75];
```

the valid range of index values for `alpha` is:

- a. 0 through 75
- b. 0 through 74
- c. 1 through 75
- d. 1 through 74
- e. 1 through 76

36. What is the output of the following program fragment?

```
int gamma[3] = {5, 10, 15};
int i;

for (i = 0; i <= 3; i++)
 cout << gamma[i] << ' ';
```

- a. 5 10 15
- b. 5 10
- c. 0 1 2
- d. 0 1
- e. It cannot be answered from the information given.

38. Given the declarations

```
int status[10];
```

```
int i;
```

which of the following loops correctly zeros out the `status` array?

- a. 

```
for (i = 0; i <= 10; i++)
 status[i] = 0;
```
- b. 

```
for (i = 0; i < 10; i++)
 status[i] = 0;
```
- c. 

```
for (i = 1; i <= 10; i++)
 status[i] = 0;
```
- d. 

```
for (i = 1; i < 10; i++)
 status[i] = 0;
```
- e. 

```
for (i = 1; i <= 11; i++)
 status[i] = 0;
```

48. You are writing a program to count the frequencies of characters that are read from a data file. (The computer uses the ASCII character set, which defines 128 different characters.) Which of the following array declarations is appropriate, given that input characters will be used to index into the `freqCount` array?

- a. 

```
int freqCount[128];
```
- b. 

```
int freqCount[char];
```
- c. 

```
char freqCount[128];
```
- d. 

```
char freqCount[int];
```
- e. none of the above

50. Given the declaration

```
char alpha[25][3];
```

how many `char` components does `alpha` have?

- a. 25
- b. 28
- c. 75
- d. 3
- e. 100

57. The following program fragment is intended to zero out a two-dimensional array:

```
int table[10][20];
int i, j;

for (j = 0; j < 20; j++)
 for (i = 0; i < 10; i++)
 // Statement is missing here
```

What is the missing statement?

- a. 

```
table[i][j] = 0;
```
- b. 

```
table[j][i] = 0;
```
- c. 

```
table[i+1][j+1] = 0;
```

- d. `table[j+1][i+1] = 0;`
  - e. `table[i-1][j-1] = 0;`
64. The following code fragment invokes a function named `InitToZero`:

```
int alpha[10][20];

InitToZero(alpha);
```

Which of the following is a valid function heading for `InitToZero`?

- a. `void InitToZero( int beta[][] )`
  - b. `void InitToZero( int beta[10][20] )`
  - c. `void InitToZero( int beta[10][] )`
  - d. `void InitToZero( int beta[][20] )`
  - e. b and d above
71. A(n) \_\_\_\_\_ is a structured collection of components, all of the same data type, that are accessed by relative position within the collection.
74. An operation on a data structure as a whole, as opposed to an operation on an individual component, is called a(n) \_\_\_\_\_ operation.
92. Write the declaration of a two-dimensional array named `twoDim` that has 10 rows and 6 columns and whose components are of type `float`: \_\_\_\_\_