

CS1411 - 160 - Spring 05 - MidTerm

March 8, 2005

1. When working at the keyboard, the user generates a newline character by pressing the Enter or Return key.
A) *True*
B) *False*
2. In the design of a flag-controlled loop, the loop condition is initialized by giving the flag variable an initial value of TRUE or FALSE, whichever is appropriate.
A) *True*
B) *False*
3. What is the output of the following code fragment if the input value is 'G'?

```
cin >> inputChar;
switch (inputChar)
{
    case 'A' : cout << 1;
               break;
    case 'Q' : cout << 2;
               break;
    case 'G' :
    case 'M' : cout << 3;
               break;
    default  : cout << 4;
```

- A) 2
 - B) 1
 - C) There is no output.
 - D) 4
 - E) 3
4. Which assignment statement could be used to store the letter A into the char variable someChar?
A) `someChar = "A";`
B) `someChar = A;`
C) `someChar = 'A';`
D) a and b above
E) a, b, and c above

5. Given the declarations

```
struct RecType1
{
    int    length;
    float width;
};
struct RecType2
{
    int    length;
    float width;
};
RecType1 myRec;
RecType2 yourRec;
```

which of the following assignment statements is valid?

- A) *myRec.length = yourRec.length;*
- B) *myRec = yourRec;*
- C) *myRec.length = yourRec;*
- D) a and b above
- E) none of the above

6. This question is about short-circuit evaluation of logical expressions. Consider the following expression in some imaginary programming language (not C++):

$(N > 5) \text{ AND } (K / N < 12)$

If N equals 0 when this expression is evaluated, which of the following statements about the expression is true?

- A) *It causes a divide-by-zero error only if the language does not use short-circuit evaluation.*
- B) *It causes a divide-by-zero error whether or not the language uses short-circuit evaluation.*
- C) *It never causes a divide-by-zero error.*
- D) *It causes a divide-by-zero error only if the language uses short-circuit evaluation.*

7. What is the output of the following code fragment?

```
n = 1;
while (n <= 5)
{
    cout << n << ' ';
    n++;
}
```

- A) 1 1 1 forever
- B) 2 3 4 5
- C) 1 2 3 4
- D) 2 3 4 5 6
- E) 1 2 3 4 5

8. What is the output of the following code fragment? (All variables are of type int.)

```
alpha = 3;
beta = 20;
if (beta > 10)
{
    int alpha = 5;

    beta = beta + alpha;
    cout << alpha << ' ' << beta << endl;
}
cout << alpha << ' ' << beta << endl;
```

- A) 5 25
- 3 25
- B) 5 25
- 3 20
- C) 3 20
- D) 5 25
- 5 25
- E) 3 25
- 3 25

9. Assuming x and y are variables of type float, the expression

```
sqrt(sqrt(3.8 * x + 9.4 * y))
```

is a valid use of the sqrt and sqr library functions.

- A) True
- B) False

10. The declaration

```
enum GradeType {'A', 'B', 'C', 'D', 'F'};
```

results in a compile-time error.

- A) True
- B) False

11. One struct can be assigned to another in an assignment statement as long as the corresponding members of both structs have the same name and type.

- A) True
- B) False

12. What does the following function do?

```
void Mystery( const ItemType list[],
              int      listLength,
              ItemType alpha,
              Boolean& result      )
{
    int index = 0;

    while (index < listLength && alpha != list[index])
        index++;
    result = (index < listLength);
}
```

- A) It inserts a new item into an ordered list.
- B) It inserts a new item into an unordered list.
- C) It sorts a list into ascending order.
- D) It searches a list for the last occurrence of a given item.
- E) *It searches a list for the first occurrence of a given item.*

13. Given the constant declaration

```
const int FACTOR = 95;
```

which of the following is not a valid use of FACTOR?

- A) `cout << FACTOR * 3;`
- B) `FACTOR = 24;`
- C) `cin >> FACTOR;`
- D) a and c above
- E) *b and c above*

14. The values of a C++ enumeration type may be input directly.

- A) True
- B) *False*

15. An individual array component can be passed as a parameter to a function.

- A) *True*
- B) False

16. In C++, a block (compound statement) is not terminated by a semicolon.

- A) *True*
- B) False

17. 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) *It cannot be answered from the information given.*
- B) 0 1
- C) 5 10 15
- D) 5 10
- E) 0 1 2

18. What is the appropriate function prototype for a function that receives a character letter grade and returns its integer equivalent on a four-point grading scale?

- A) `char IntEquiv(int);`
- B) `int IntEquiv(char);`
- C) `int IntEquiv(char&);`
- D) `void IntEquiv(char);`
- E) `void IntEquiv(int);`

19. Inside the computer, the null character is represented as the integer 0.

- A) *True*
- B) *False*

20. The components of an array are all of the same data type.

- A) *True*
- B) *False*

21. Which of the following statements about the C++ main function is false?

- A) The word `int` in the function heading means that the main function returns an integer value (to the operating system).
- B) *The main function must call (invoke) at least one other function.*
- C) Every program must have a function named `main`.
- D) Program execution begins with the first executable statement in the main function.

22. If a programmer has developed a large portion of a complete project and wants to test the developed portion before implementing the remaining functions, this programmer is more likely to need function drivers than function stubs.

- A) *True*
- B) *False*

23. Given the declaration

```
char myName[4] = "Ben";
```

which of the following does not output "Ben"?

A)

```
i = 0;
while (myName[i] != '\0')
{
    cout << myName[i];
    i++;
}
```

B)

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

C)

```
for (i = 0; i < 3; i++)
    cout << myName;
```

D)

```
cout << myName;
```

E) none of the above—they are all valid

24. Convert 99_D to Hex

A) 63

B) 143

C) 153

D) this is impossible

25. In C++, a function definition may have another function definition nested within it.

A) True

B) False

26. When accepting two-dimensional array is passed as a function parameter, all dimensions must be given in the function header

A) True

B) False

27. Does the following Switch statement cause a compile-time error? (n and alpha are of type int.)

```
switch (n)
{
    case 6 : alpha = 10;
            break;
    case 2 :
    case 5 : alpha = 20;
            break;
    case 8 :
    case 2 : alpha = 30;
}

```

- A) No.
- B) *Yes—there are duplicate case labels.*
- C) Yes—the default label is missing.
- D) Yes—the data types of the case labels are not valid.
- E) Yes—one or more break statements are missing.

28. If a C++ program attempts to input invalid data, the computer system immediately terminates the program and displays an error message.

- A) True
- B) *False*

29. Convert 99_H to decimal

- A) 63
- B) 143
- C) *153*
- D) This is impossible

30. The declaration

```
enum Reasons {TOO_BIG, TOO_SMALL, TOO_LATE};
```

creates an anonymous type.

- A) True
- B) *False*

31. If a char value occupies one byte of memory and a float value occupies four bytes, how many bytes of memory does myDisk occupy?

- A) *44*
- B) 1
- C) 24
- D) 8
- E) 5

32. Assuming alpha and beta are int variables, what is the output of the following code (which is indented poorly)?

```
alpha = 3;
beta = 2;
if (alpha < 2)
if (beta == 3)
cout << "Hello";
else cout << "There";
```

- A) Hello
- B) HelloThere
- C) There
- D) *Nothing is output.*

33. Consider the following declarations:

```
typedef char String19[20];
struct BrandInfo
{
    String19 company;
    String19 model;
};
struct DiskType
{
    BrandInfo brand;
    float    capacity;
};
DiskType myDisk;
```

34. Which of the following is the correct function heading for a parameterless function named PrintStars?

- A) void PrintStars;
- B) void PrintStars(int n)
- C) void PrintStars
- D) void PrintStars();
- E) *void PrintStars()*