

Exam 2: Alternative Version

1. Which statement below tests if letter holds W. (letter is a char)

- a. if (letter == "W")
- b. if (letter >= "W")
- c. if (letter == W)
- d. if (letter = 'W')
- e. if (letter == 'W')

2. What are if statements used for in programs?

- a. Repeating commands
- b. Storing data
- c. Numeric calculations
- d. Numeric casts
- e. Making decisions

3. What is output?

```
int x = 31 % 8;
if ( x > 10)
    System.out.println(1);
else if ( x > 8 )
    System.out.println(2);
else if ( x > 6 )
    System.out.println(3);
else if ( x > 4 )
    System.out.println(4);
else
    System.out.println(5);
```

- a. 1 b. 2 c. 3 d. 4 e. 5

4. Short circuit evaluation means that in the code:

```
if ( y != 0 && x/y > 10 )
```

- a. If x/y > 10 is false it evaluates y != 0
- b. If y != 0 is false it doesn't evaluate x/y > 10
- c. If x/y > 10 is false it doesn't evaluate y != 0
- d. If y != 0 is true it doesn't evaluate x/y > 10
- e. If y != 0 is false it evaluates x/y > 10

5. The following truth table matches which boolean condition?

A	B	?
T	T	T
T	F	F
F	T	F
F	F	F

- a. A && (A || B)
- b. A || (!A && !B)
- c. A && (A && B)
- d. !A && (A || !B)
- e. A || (A || B)

6. Consider the following code segment:

```
if( x < 200 || x > 299 )
    System.out.println("Not in the 200's");
else
    System.out.println("In the 200's");
```

Which of the following code segments produces the exact same output?

I.

```
if ( x < 200 )
    System.out.println("Not in the 200's");
else if ( x > 299 )
    System.out.println("Not in the 200's");
else
    System.out.println("In the 200's");
```

II.

```
if ( x < 200) {
    if ( x > 300)
        System.out.println("In the 200's");
    else
        System.out.println("Not in the 200's");
} else
    System.out.println("Not in the 200's");
```

III.

```
if( x >= 200 )
    System.out.println("In the 200's");
else if ( x <= 299 )
    System.out.println("In the 200's");
else
    System.out.println("Not in the 200's");
```

- a. I only
- b. II only
- c. III only
- d. I and II
- e. II and III

7. To test if a grade is not a C (not between 70 and 79 inclusive) you would do:

```
if ( g __ 70 __ g __ 79 )
```

- a. >=, &&, <=
- b. >=, ||, <=
- c. >, ||, <
- d. <, &&, >
- e. <, ||, >

8. Assume that x and y are properly initialized boolean values. Which option best describes the result?

```
(x || y) && ! (x || y)
```

- a. Always true
- b. Always false
- c. true only when x is true and y is true

- d. true only when x and y have the same value
- e. true only when x and y have different values

9. Assume that x and y are properly initialized boolean variables. Which option best describes the result?

```
!(x && y) || (x && y)
```

- a. Always true
- b. Always false
- c. true only when x is true and y is true
- d. true only when x and y have the same value
- e. true only when x and y have different values

10. `!(x >= y || w == z)` Simplifies to:

- a. `x <= y && w == z`
- b. `x >= y || w != z`
- c. `x <= y || w != z`
- d. `x <= y && w != z`
- e. `x < y && w != z`

11. What is output to the screen by the following code?

```
int c = 0;
while( c < 6) {
    c++;
    System.out.print((int)Math.pow(-1, c) + " ");
}
```

- a. -1 1 -1 1 -1 1 -1
- b. 1 -1 1 -1 1 -1
- c. -1 1 -1 1 -1 1
- d. 1 1 1 1 1 1
- e. -1 -1 -1 -1 -1 -1

12. How many times will the following loop run?

```
int num = 49;
while(num > 0) {
    if( num%9 == 0 )
        num = num + 3;
    else
        num -= 4;
}
```

- a. 20
- b. 21
- c. 22
- d. 23
- e. Infinite loop

13. What is output to the screen by the following code?

```
int num = 1987;
while( num > 0 ) {
    System.out.print(num%10 + " ");
    num = num/10;
}
```

- a. 8 9 1 0
- b. 198 19 1 0
- c. 19 1 0 0
- d. 7 8 9 1
- e. The loop will not terminate

14. What is output to the screen by the following code?

```
int f = 0;
while( f < 8 ) {
    f++;
    System.out.print( f%3 + " " );
}
```

- a. 2 0 1 2 0 1 2
- b. 0 1 2 0 1 2
- c. 1 2 0 1 2 0 1 2
- d. 1 2 0 1 2 0 1 2 0
- e. 2 0 1 2 0 1 2 0

15. What is output to the screen by the following code?

```
System.out.println("The answer is: " + 5 + 19);
```

- a. The answer is: 519
- b. The answer is: 19
- c. The answer is: 24
- d. The answer is: 5 19
- e. Error – Strings cannot do calculations.

16. What is output to the screen by the following code?

```
System.out.println( Math.sqrt(26) );
```

- a. 5
- b. 5.0
- c. 5.09901951359278
- d. 6
- e. Error – Possible loss of precision

17. Does the following code need a cast? If so, what should you type to cast?

```
double val = 13;
```

- a. no, none
- b. yes, (decimal)
- c. yes, (double)
- d. yes, (int)
- e. yes, (String)

18. What are the first and last numbers output by the following code?

```
int count = 4;
while ( count <= 3 ) {
    count++;
    System.out.println(count + " ");
}
```

- a. 4 7
- b. 4 8
- c. 5 7
- d. 5 8
- e. Nothing is output.

19. Of the following if statements, which correctly execute exactly two commands when the condition is true and does nothing if it is false?

I.

```
if (y == 99)
    System.out.println("A");
    System.out.println("B");
```

II.

```
if(y == 99)
    System.out.println("A");
    System.out.println("B");
System.out.println("C");
```

III.

```
if(y == 99) {
    System.out.println("A");
    System.out.println("B");
}
```

- a. I only
- b. II only
- c. III only
- d. II and III but not I
- e. I and III but not II

20. Consider the following code segment:

```
int c = 1;
while(c <= 35) {
    c++;
    if(c%5 == 0)
        System.out.print(c + " ");
}
```

Which of the following produces the exact same output?

I.

```
int c = 1;
while(c <= 35) {
    c++;
    if( c%5 == 4)
        System.out.print( (c + 1) + " ");
}
```

II.

```
int c = 0;
while(c <= 35) {
    c += 5;
    System.out.print(c + " ");
}
```

III.

```
int c = 0;
while(c < 35) {
    c += 5;
    System.out.print(c + " ");
}
```

- a. I only
- b. II only
- c. III only
- d. I and III only
- e. I, II and III