CSE686 Internet Programming

Java Pre-Test

January 17, 2018

Student Name: _____

Please print your name. Each question is worth **0.25** points, and has only one answer. Please circle the letter of your answer for each question.

1. Which of the following is a legal way to declare and instantiate an array of 10 Strings?
   A. String s = new String(10);
   B. String[10] s = new String;
   C. String[ ] s = new String;
   D. String[ ] s = new String[10];
   E. String s = new String[10];

2. Which of the following is a valid Java identifier?
   A. class
   B. **class2**
   C. class+
   D. class#
   E. 2classes

3. Consider the following Java class:

```
public class Question {
   public static int x = 0;
   public int y = 0;
}
```

What is the output from the following code? (Circle the letter of your answer.)

```
Question a = new Question();
Question b = new Question();
a.x = 1;
b.x = 2;
a.y = 1;
b.y = 2;
System.out.println("a.x + a.y = " + (a.x + a.y));
```

   A. a.x + a.y = 1
   B. a.x + a.y = 2
   C. a.x + a.y = 3
   D. a.x + a.y = 4
   E. Error

4. Which one of the following statements about **parent/child classes** is correct**?**
   A. A child class can override a method from the parent.
   B. A child class can override the constructor of the parent class.
   C. A child class can override a final method of the parent class.
   D. A child class cannot define a method with the same name as a method in the parent.
   E. A child class cannot define a variable with the same name as a variable in the parent.

5. What will be the output produced by the following code?

```
int[] numbers = {3, 6, 9};
for (int val : numbers) System.out.print(val + "");
```

   A. {3, 6, 9}
   B. [3, 6, 9]
   C. 369
   D. 123
   E. Syntax error

6. For the following 3 questions, assume that an int array, **candy**, stores the number of candy bars sold by a group of children where **candy[j]** is the number of candy bars sold by child j. Assume there are 12 children in all. What does the following code do?

```
Scanner scan = new Scanner(System.in);
int value1 = scan.nextInt( );
int value2 = scan.nextInt( );
candy[value1] += value2;
```

   A. adds 1 to the number of bars sold by child value1 and child value2
   B. adds 1 to the number of bars sold by child value1
   C. adds value1 to the number of bars sold by child value2
   D. adds value2 to the number of bars sold by child value1
   E. inputs a new value for the number of bars sold by both child value1 and child value2

7. Which of the following code could be used to compute the total number of bars sold by the children?
   A. for (int j=0; j<12; j++) sum += candy[j];
   B. for (int j=0; j<12; j++) candy[j] = sum;
   C. for (int j=0; j<12; j++) sum = candy[j];
   D. for (int j=0; j<12; j++) sum += [j];
   E. for (int j=0; j<12; j++) [j] += sum;

8. What does the following method do?

```
public int doSomething( ) {
        int value1 = 0;
        int value2 = 0;
        for (int j = 0; j < 12; j++)
            if (candy[j] > value1)
            {
                    value1 = candy[j];
                    value2 = j;
            }
        return value2;
}
```

   A. It returns the total number of candy bars sold
   B. It returns the total number of children who sold 0 candy bars
   C. It returns the total number of children who sold more than 0 candy bars
   D. It returns the number of candy bars sold by the child who sold the most candy bars
   E. It returns the index of the child who sold the most candy bars

9. Which Java reserved word should we use to create a constant?

   A. const
   B. static
   C. finalize
   D. final
   E. finally

10. Assuming **str** is a String object, which of the following method invocations could throw a StringIndexOutOfBoundsException? (Circle the letter of your answer.)
   A. str.length() ;
   B. str.charAt(200);
   C. str.replace('a', 'A');
   D. str.equals(str);
   E. any of the above could throw a StringIndexOutOfBoundsException

11. An exception can produce a "**call stack trace**" which lists
   A. the active methods in the order that they were invoked
   B. the active methods in the opposite order that they were invoked
   C. the values of all instance data of the object where the exception was raised
   D. the values of all instance data of the object where the exception was raised and all local variables and parameters of the method where the exception was raised
   E. the name of the exception thrown

12. A Java class has the following three methods defined:

```
public int read() throws IOException
public int read(byte[] input) throws IOException
public int read(byte[] input, int offset, int length) throws IOException
```

As you can see, all three methods have the same name, but different signatures. This is commonly referred to as _____. (Circle the letter of your answer.)

A. overloading
B. overriding
C. encapsulation
D. inheritance
E. polymorphism

13. Given the following Java statement, if x is 0, then y is _____.

```
y = x < 0 ? 1 : 2;
```

A. 0
B. 1
C. 2
D. 3
E. 0.5

14. What is the output from the following Java code? (Circle the letter of your answer.)

```
int aNumber = (1 << 4);
aNumber >>= 1;
System.out.println(aNumber);
```

A. 1
B. 2
C. 4
D. 8
E. 16

15. A **finally** clause will execute: (Circle the letter of your answer.)

A. only if the try statement that precedes it does not throw an exception
B. only if the try statement that precedes it throws an exception that is caught
C. only if the try statement that precedes it throws an exception that is not caught
D. only if the try statement that precedes it throws an exception, whether it is caught or not
E. in any circumstance

16. What is printed by the following Java code? Consider the **polymorphic** invocation.

```
public class Inherit {
    class Figure {
        void display() { System.out.println("Figure");  }
    }

    class Rectangle extends Figure {
        void display() {  System.out.println("Rectangle"); }
    }

    class Circle extends Figure {
        void display() { System.out.println("Circle"); }
    }

    Inherit() { // constructor
        Figure f = new Figure();
        Rectangle r = new Rectangle( );
        Circle c = new Circle( );
        f.display( );
        f = r;
        f.display( );
        f = c;
        f.display( );
    }

    public static void main(String[ ] args) {
        new Inherit( ); // call the constructor
    }
}
```

A. Figure
   Figure
   Figure
B. Figure
   Figure
   Circle
C. Figure
   Rectangle
   Circle
D. Syntax error. This code won't compile or execute.
E. None of the above

17. Consider the following code snippet:

```
int i = 8;
int n = i++%4;
```

What are the values of i and n after the code is executed? (Circle the letter of your answer.)

A. i is 8; n is 0
B. i is 9; n is 0
C. i is 8; n is 1
D. i is 9; n is 1
E. None of the above

18. Aside from permitting inheritance, the visibility modifier **protected** is also used to
A. permit access to the protected item by any class defined in the same package
B. permit access to the protected item by any static class
C. permit access to the protected item by any parent class
D. ensure that the class cannot throw a NullPointerException
E. define abstract elements of an interface

19. A **continue** statement
A. is identical to a break statement within Java loops
B. may be used within a while or a do-while loop, but not a for loop
C. may be used within a for loop, but not within a while or a do-while loop
D. may be used within any Java loop statement
E. none of the above

20. A Java program can handle an exception in several different ways. Which of the following is NOT a way that a Java program could handle an exception?
A. Throw the exception to a pre-defined Exception class to be handled
B. Ignore the exception
C. Handle the exception where it arose using try and catch statements
D. Propagate the exception to another method where it can be handled
E. All of the above are ways that a Java program could handle an exception