Java Standard Edition 6 Programmer Certified Professional Exam - Mock Exam V

Section 1: Declarations, Initialization and Scoping

- Develop code that declares classes (including abstract and all forms of nested classes), interfaces, and enums, and includes the appropriate use of package and import statements (including static imports).
- Develop code that declares an interface. Develop code that implements or extends one or more interfaces.
- Develop code that declares an abstract class. Develop code that extends an abstract class.
- Develop code that declares, initializes, and uses primitives, arrays, enums, and objects as static, instance, and local variables. Also, use legal identifiers for variable names.
- Given a code example, determine if a method is correctly overriding or overloading another method, and identify legal return values (including covariant returns), for the method.
- Given a set of classes and superclasses, develop constructors for one or more of the classes. Given a class declaration, determine if a default constructor will be created, and if so, determine the behavior of that constructor. Given a nested or non-nested class listing, write code to instantiate the class.

Section 2: Flow Control

- Develop code that implements an if or switch statement; and identify legal argument types for these statements.
- Develop code that implements all forms of loops and iterators, including the use of for, the enhanced for loop (for-each), do, while, labels, break, and continue; and explain the values taken by loop counter variables during and after loop execution.
- Develop code that makes use of assertions, and distinguish appropriate from inappropriate uses of assertions.
- Develop code that makes use of exceptions and exception handling clauses (try, catch, finally), and declares methods and overriding methods that throw exceptions.
- Recognize the effect of an exception arising at a specified point in a code fragment. Note that the exception may be a runtime exception, a checked exception, or an error.
- Recognize situations that will result in any of the following being thrown: ArrayIndexOutOfBoundsException,ClassCastException, IllegalArgumentException, IllegalStateException, NullPointerException, NumberFormatException, AssertionError, ExceptionInInitializerError, StackOverflowError or NoClassDefFoundError. Understand which of these are thrown by the virtual machine and recognize situations in which others should be thrown programatically.

Section 3: API Contents

- Develop code that uses the primitive wrapper classes (such as Boolean, Character, Double, Integer, etc.), and/or autoboxing & unboxing. Discuss the differences between the String, StringBuilder, and StringBuffer classes.
- Given a scenario involving navigating file systems, reading from files, writing to files, or interacting with the user, develop the correct solution using the following classes (sometimes in combination), from java. io: BufferedReader, BufferedWriter, File, FileReader, FileWriter, PrintWriter, and Console.
- Use standard J2SE APIs in the java.text package to correctly format or parse dates, numbers, and currency values for a specific locale; and, given a scenario, determine the appropriate methods to use if you want to use the default locale or a specific locale. Describe the purpose and use of the java.util. Locale class.
- Write code that uses standard J2SE APIs in the java.util and java.util.regex packages to format or parse strings or streams. For strings, write code that uses the Pattern and Matcher classes and the String.split method. Recognize and use regular expression patterns for matching (limited to: . (dot), * (star), + (plus), ?, \d, \s, \w, [], ()). The use of *, +, and ? will be limited to greedy quantifiers, and the parenthesis operator will only be used as a grouping mechanism, not for capturing content during matching. For streams, write code using the Formatter and Scanner classes and the PrintWriter.format/printf methods. Recognize and use formatting parameters (limited to: %b, %c, %d, %f, %s) in format strings.

Section 4: Concurrency

- Write code to define, instantiate, and start new threads using both java.lang.Thread and java.lang.

Runnable.
- Recognize the states in which a thread can exist, and identify ways in which a thread can transition from one state to another.
- Given a scenario, write code that makes appropriate use of object locking to protect static or instance variables from concurrent access problems.

Section 5: OO Concepts

- Develop code that implements tight encapsulation, loose coupling, and high cohesion in classes, and describe the benefits.
- Given a scenario, develop code that demonstrates the use of polymorphism. Further, determine when casting will be necessary and recognize compiler vs. runtime errors related to object reference casting.
- Explain the effect of modifiers on inheritance with respect to constructors, instance or static variables, and instance or static methods.
- Given a scenario, develop code that declares and/or invokes overridden or overloaded methods and code that declares and/or invokes superclass, or overloaded constructors.
- Develop code that implements "is-a" and/or "has-a" relationships.

Section 6: Collections / Generics

- Given a design scenario, determine which collection classes and/or interfaces should be used to properly implement that design, including the use of the Comparable interface.
- Distinguish between correct and incorrect overrides of corresponding hashCode and equals methods, and explain the difference between == and the equals method.
- Write code that uses the generic versions of the Collections API, in particular, the Set, List, and Map interfaces and implementation classes. Recognize the limitations of the non-generic Collections API and how to refactor code to use the generic versions. Write code that uses the NavigableSet and NavigableMap interfaces.
- Develop code that makes proper use of type parameters in class/interface declarations, instance variables, method arguments, and return types; and write generic methods or methods that make use of wildcard types and understand the similarities and differences between these two approaches.
- Use capabilities in the java.util package to write code to manipulate a list by sorting, performing a binary search, or converting the list to an array. Use capabilities in the java.util package to write code to manipulate an array by sorting, performing a binary search, or converting the array to a list. Use the java.util.Comparator and java.lang.Comparable interfaces to affect the sorting of lists and arrays. Furthermore, recognize the effect of the "natural ordering" of primitive wrapper classes and java.lang. String on sorting.

Section 7: Fundamentals

- Given a code example and a scenario, write code that uses the appropriate access modifiers, package declarations, and import statements to interact with (through access or inheritance) the code in the example.
- Given an example of a class and a command-line, determine the expected runtime behavior.
- Determine the effect upon object references and primitive values when they are passed into methods that perform assignments or other modifying operations on the parameters.
- Given a code example, recognize the point at which an object becomes eligible for garbage collection, determine what is and is not guaranteed by the garbage collection system, and recognize the behaviors of the Object.finalize() method.
- Given the fully-qualified name of a class that is deployed inside and/or outside a JAR file, construct the appropriate directory structure for that class. Given a code example and a classpath, determine whether the classpath will allow the code to compile successfully.
- Write code that correctly applies the appropriate operators including assignment operators (limited to: =, +=, -=), arithmetic operators (limited to: +, -, *, /, %, ++, --), relational operators (limited to: <, <=, >, >=, ==, !=), the instanceof operator, logical operators (limited to: &, |, ^, !, &&, ||), and the conditional operator (? :), to produce a desired result. Write code that determines the equality of two objects or two primitives

Exam A

QUESTION 1
Given:

```
11. public interface Status {
12.    /* insert code here */ int MY_VALUE = 10;
13. }
```

Which three are valid on line 12? (Choose three.)

A. final
B. static
C. native
D. public
E. private
F. abstract
G. protected

Correct Answer: ABD

QUESTION 2
Given:

- d is a valid, non-null Date object
- df is a valid, non-null DateFormat object set to the current locale

What outputs the current locale's country name and the appropriate version of d's date?

A. Locale loc = Locale.getLocale();
System.out.println(loc.getDisplayCountry() + " "+ df.format(d));
B. Locale loc = Locale.getDefault();
System.out.println(loc.getDisplayCountry() + " " + df.format(d));
C. Locale bc = Locale.getLocale();
System.out.println(loc.getDisplayCountry() + " "+ df.setDateFormat(d));
D. Locale loc = Locale.getDefault();
System.out.println(loc.getDisplayCountry() + " "+ df.setDateFormat(d));

Correct Answer: B

QUESTION 3
Given:

```
10. interface Foo { int bar(); }
11. public class Sprite {
12.    public int fubar( Foo foo) { return foo.bar(); }
13.    public void testFoo() {
14.       fubar(
15.        // insert code here
16.       );
17.    }
18. }
```

Which code, inserted at line 15, allows the class Sprite to compile?

A. Foo { public int bar() { return 1; } }
B. new Foo { public int bar() { return 1; } }
C. new Foo() { public int bar(){ return 1; } }
D. new class Foo { public int bar() { return 1; } }

Correct Answer: C

QUESTION 4
Given:

```
1. package sun.scjp;
2. public enum Color { RED, GREEN, BLUE }

1. package sun.beta;
2. // insert code here
3. public class Beta {
4.    Color g = GREEN;
5.    public static void main( String[] argv)
6.    { System.out.println(GREEN); }
7. }
```

The class Beta and the enum Color are in different packages.

Which two code fragments, inserted individually at line 2 of the Beta declaration, will allow this code to compile? (Choose two.)

A. import sun.scjp.Color.*;

B. import static sun.scjp.Color.*;

C. import sun.scjp.Color;
import static sun.scjp.Color.*;

D. import sun.scjp.*;
import sun.scjp.Color.*;

E. import sun.scjp.Color;
import static sun.scjp.Color.GREEN;

Correct Answer: CE

QUESTION 5
Given:

```
public interface A {
   String DEFAULT_GREETING = "Hello World";
   public void method1();
}
```

A programmer wants to create an interface called B that has A as its parent. Which interface declaration is correct?

A. public interface B extends A {}

B. public interface B implements A {}

C. public interface B instanceOf A {}

D. public interface B inheritsFrom A {}

Correct Answer: A

QUESTION 6
Given:

```
interface TestA { String toString(); }
public class Test {
   public static void main(String[] args) {
      System.out.println(new TestA() {
         public String toString() { return "test"; }
      });
   }
}
```

What is the result?

A. test

B. null
C. An exception is thrown at runtime.
D. Compilation fails because of an error in line 1.
E. Compilation fails because of an error in line 4.
F. Compilation fails because of an error in line 5.

Correct Answer: A

QUESTION 7
Given:

```
10. abstract public class Employee {
11.    protected abstract double getSalesAmount();
12.    public double getCommision() {
13.       return getSalesAmount() * 0.15;
14.    }
15. }
16. class Sales extends Employee {
17.    // insert method here
18. }
```

Which two methods, inserted independently at line 17, correctly complete the Sales class? (Choose two.)

A. double getSalesAmount() { return 1230.45; }
B. public double getSalesAmount() { return 1230.45; }
C. private double getSalesAmount() { return 1230.45; }
D. protected double getSalesAmount() { return 1230.45; }

Correct Answer: BD

QUESTION 8
Given:

```
public abstract class Shape {
   private int x;
   private int y;
   public abstract void draw();
   public void setAnchor(int x, int y) {
      this.x = x;
      this.y = y;
   }
}
```

Which two classes use the Shape class correctly? (Choose two.)

```
A. public class Circle implements Shape {
      private int radius;
   }
B. public abstract class Circle extends Shape {
      private int radius;
   }
C. public class Circle extends Shape {
      private int radius;
      public void draw();
   }
D. public abstract class Circle implements Shape {
      private int radius;
      public void draw();
   }
E. public class Circle extends Shape {
      private int radius;
      public void draw() {/* code here */}
```

}
F. public abstract class Circle implements Shape {
private int radius;
public void draw() { / code here */ }
}

Correct Answer: BE

QUESTION 9
Which two classes correctly implement both the java.lang.Runnable and the java.lang.Clonable interfaces? (Choose two.)

A. public class Session implements Runnable, Clonable {
public void run();
public Object clone();
}
B. public class Session extends Runnable, Clonable {
public void run() { / do something */ }
public Object clone() { / make a copy */ }
}
C. public class Session implements Runnable, Clonable {
public void run() { / do something */ }
public Object clone() { /* make a copy */ }
}
D. public abstract class Session implements Runnable, Clonable {
public void run() { / do something */ }
public Object clone() { /*make a copy */ }
}
E. public class Session implements Runnable, implements Clonable {
public void run() { / do something */ }
public Object clone() { / make a copy */ }
}

Correct Answer: CD

QUESTION 10
Given:

```
11. public enum Title {
12.    MR("Mr."), MRS("Mrs."), MS("Ms.");
13.    private final String title;
14.    private Title(String t) { title = t; }
15.    public String format(String last, String first) {
16.       return title + " " + first + " " + last;
17.    }
18. }
19. public static void main(String[] args) {
20.    System.out.println(Title.MR.format("Doe", "John"));
21. }
```

What is the result?

A. Mr. John Doe
B. An exception is thrown at runtime.
C. Compilation fails because of an error in line 12.
D. Compilation fails because of an error in line 15.
E. Compilation fails because of an error in line 20.

Correct Answer: A

QUESTION 11
A programmer needs to create a logging method that can accept an arbitrary number of arguments. For

example, it may be called in these ways:

```
logIt("log message 1 ");
logIt("log message2","log message3");
logIt("log message4", "log message5", "log message6);
```

Which declaration satisfies this requirement?

A. public void logIt(String * msgs)
B. public void logIt(String [] msgs)
C. public void logIt(String... msgs)
D. public void logIt(String msg1, String msg2, String msg3)

Correct Answer: C

QUESTION 12
Given:

```
10. class One {
11.    void foo() {}
12. }
13. class Two extends One {
14. //insert method here
15. }
```

Which three methods, inserted individually at line 14, will correctly complete class Two? (Choose three.)

A. int foo() { /* more code here */ }
B. void foo() { /* more code here */ }
C. public void foo() { /* more code here */ }
D. private void foo() { /* more code here */ }
E. protected void foo() { /* more code here */ }

Correct Answer: BCE

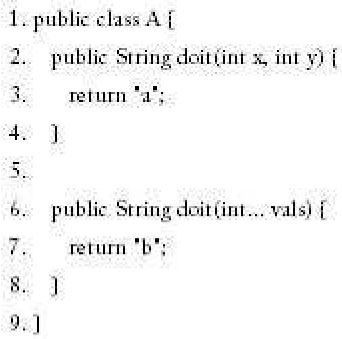
QUESTION 13
Click the Exhibit button.

Given:

```
A a=new A();
System.out.println(a.doit(4, 5));
```

What is the result?

Exhibit:



```
1. public class A {
2.    public String doit(int x, int y) {
3.       return "a";
4.    }
5.
6.    public String doit(int... vals) {
7.       return "b";
8.    }
9. }
```

A. Line 26 prints "a" to System.out.

B. Line 26 prints "b" to System.out.

C. An exception is thrown at line 26 at runtime.

D. Compilation of class A will fail due to an error in line 6.

Correct Answer: A

QUESTION 14

Given:

```
10. class Line {
11.    public static class Point { }
12. }
13.
14. class Triangle {
15. // insert code here
16. }
```

Which code, inserted at line 15, creates an instance of the Point class defined in Line?

A. Point p = new Point();

B. Line.Point p = new Line.Point();

C. The Point class cannot be instatiated at line 15.

D. Line 1 = new Line() ;
1.Point p = new 1.Point();

Correct Answer: B

QUESTION 15

Given:

```
public class Test {
   public enum Dogs {collie, harrier};
   public static void main(String [] args) {
      Dogs myDog = Dogs.collie;
      switch (myDog) {
         case collie:
            System.out.print("collie ");
         case harrier:
            System.out.print("harrier ");
      }
   }
}
```

What is the result?

A. collie

B. harrier

C. Compilation fails.

D. collie harrier

E. An exception is thrown at runtime.

Correct Answer: D

QUESTION 16

Given:

```
11. public static void main(String[] args) {
12.    String str = "null";
13.    if (str == null) {
14.       System.out.println("null");
15.    } else (str.length() == 0) {
16.        System.out.println("zero");
17.    } else {
        System.out.println("some");
    }
}
```

What is the result?

A. null
B. zero
C. some
D. Compilation fails.
E. An exception is thrown at runtime.

Correct Answer: D

QUESTION 17
Given:

```
public static void main(String[] args) {
    for (int i = 0;i <= 10; i++){
        if( i>6) break;
    }
    System.out.println(i);
}
```

What is the result?

A. 6
B. 7
C. 10
D. 11
E. Compilation fails.
F. An exception is thrown at runtime.

Correct Answer: E

QUESTION 18
Given:

```
public static Iterator reverse(List list) {
    Collections.reverse(list);
    return list.iterator();
}
public static void main(String[] args) {
    List list = new ArrayList();
    list.add(" 1"); list.add("2"); list.add("3");
    for (Object obj: reverse(list))
        System.out.print(obj + ",");
}
```

What is the result?

A. 3,2, 1,
B. 1, 2, 3,
C. Compilation fails.
D. The code runs with no output.
E. An exception is thrown at runtime.

Correct Answer: C

QUESTION 19
Given:

```
public static Collection get() {
   Collection sorted = new LinkedList();
   sorted.add('B"); sorted.add("C"); sorted.add("A");
   return sorted;
}
public static void main(String[] args) {
   for (Object obj: get()) {
      System.out.print(obj + ", ");
   }
}
```

What is the result?

A. A, B, C,
B. B, C, A,
C. Compilation fails.
D. The code runs with no output.
E. An exception is thrown at runtime.

Correct Answer: B

QUESTION 20
Given:

```
public class test {
    public static void main(String [] a) {
      assert a.length == 1;
   }
}
```

Which two will produce an AssertionError? (Choose two.)

A. java test
B. java -ea test
C. java test file1
D. java -ea test file1
E. java -ea test file1 file2
F. java -ea:test test file1

Correct Answer: BE

QUESTION 21
Given:

```
public class AssertStuff {

   public static void main(String [] args) {
      int x = 5;
      int y = 7;

      assert (x> y): "stuff";
      System.out.println("passed");
   }
}
```

And these command line invocations:

java AssertStuff
java -ea AssertStuff

What is the result?

A. passed
stuff

B. stuff
passed

C. passed
An AssertionError is thrown with the word "stuff" added to the stack trace.

D. passed
An AssertionError is thrown without the word "stuff" added to the stack trace.

E. passed
An AssertionException is thrown with the word "stuff" added to the stack trace.

F. passed
An AssertionException is thrown without the word "stuff" added to the stack trace.

Correct Answer: C

QUESTION 22
Given:

```
33. try {
34. // some code here
35. } catch (NullPointerException e1) {
36.    System.out.print("a");
37. } catch (RuntimeException e2) {
38.    System.out.print("b");
39. } finally {
40.    System.out.print("c");
41. }
```

What is the result if a NullPointerException occurs on line 34?

A. c

B. a

C. ab

D. ac

E. bc

F. abc

G. Compilation fails

Correct Answer: D

QUESTION 23
Given:

```
11. classA {
12.    public void process() { System.out.print("A,"); } }
13. class B extends A {
14.    public void process() throws IOException {
15.       super.process();
16.       System.out.print("B,");
17.       throw new IOException();
18.    } }
19.    public static void main(String[] args) {
20.       try { new B().process(); }
21.       catch (IOException e) { System.out.println("Exception"); } }
```

What is the result?

A. Exception

B. A,B,Exception

C. Compilation fails because of an error in line 20.

D. Compilation fails because of an error in line 14.

E. A NullPointerException is thrown at runtime.

Correct Answer: D

QUESTION 24
Given:

```
11. classA {
12.    public void process() { System.out.print("A "); } }
13. class B extends A {
14.    public void process() throws RuntimeException {
15.       super.process();
16.       if (true) throw new RuntimeException();
17.       System.out.print("B"); }}
18.    public static void main(String[] args) {
19.       try { ((A)new B()).process(); }
20.       catch (Exception e) { System.out.print("Exception "); }
21. }
```

What is the result?

A. Exception
B. A Exception
C. A Exception B
D. A B Exception
E. Compilation fails because of an error in line 14.
F. Compilation fails because of an error in line 19.

Correct Answer: B

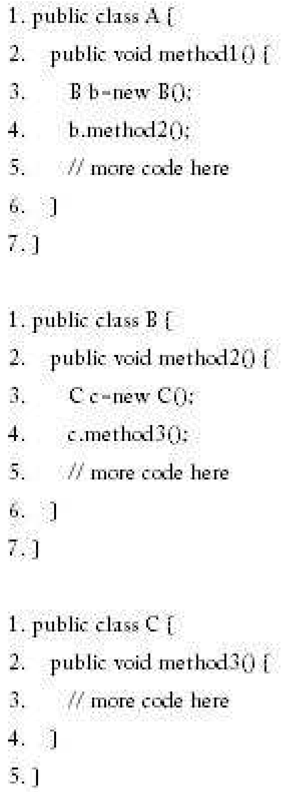
QUESTION 25
Click the Exhibit button.

Given:

```
25. try {
26.    A a=new A();
27.    a.method1();
28. } catch (Exception e) {
29.    System.out.print("an error occurred");
30. }
```

Which two are true if a NullPointerException is thrown on line 3 of class C? (Choose two.)

Exhibit:



```
public class A {
  public void method1() {
    B b=new B();
    b.method2();
    // more code here
  }
}

public class B {
  public void method2() {
    C c=new C();
    c.method3();
    // more code here
  }
}

public class C {
  public void method3() {
    // more code here
  }
}
```

A. The application will crash.

B. The code on line 29 will be executed.
C. The code on line 5 of class A will execute.
D. The code on line 5 of class B will execute.
E. The exception will be propagated back to line 27.

Correct Answer: BE

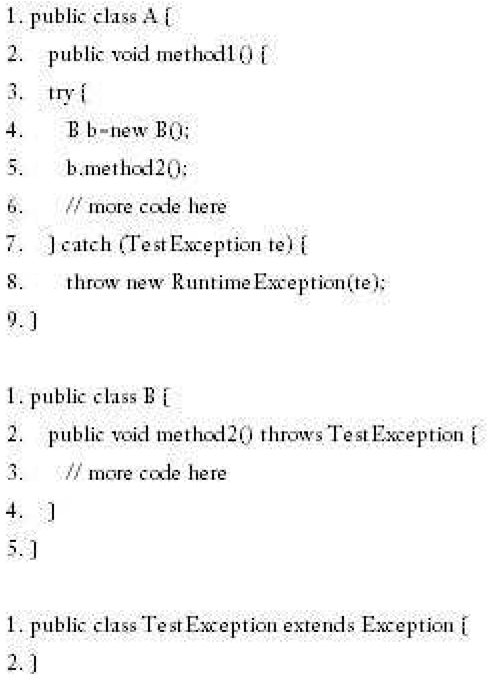
QUESTION 26
Click the Exhibit button.

Given:

```
31. public void method() {
32.    A a=new A();
33.    a.method1();
34. }
```

Which is true if a TestException is thrown on line 3 of class B?

Exhibit:



```
1. public class A {
2.    public void method1() {
3.    try {
4.       B b=new B();
5.       b.method2();
6.       // more code here
7.    } catch (TestException te) {
8.       throw new RuntimeException(te);
9. }

1. public class B {
2.    public void method2() throws TestException {
3.       // more code here
4.    }
5. }

1. public class TestException extends Exception {
2. }
```

A. Line 33 must be called within a try block.

B. The exception thrown by method1 in class A is not required to be caught.
C. The method declared on line 31 must be declared to throw a RuntimeException.
D. On line 5 of class A, the call to method2 of class B does not need to be placed in a try/catch block.

Correct Answer: B

QUESTION 27
Given:

```
public static void main(String[] args) {
   try {
      args=null;
      args[0] = "test";
      System.out.println(args[0]);
   } catch (Exception ex) {
        System.out.println("Exception");
   } catch (NullPointerException npe) {
        System.out.println("NullPointerException");
   }
}
```

What is the result?

A. test
B. Exception
C. Compilation fails.
D. NullPointerException

Correct Answer: C

QUESTION 28
Given:

```
static void test() {
   try {
      String x=null;
      System.out.print(x.toString() +" ");
   }
   finally { System.out.print("finally "); }
}
public static void main(String[] args) {
   try { test(); }
   catch (Exception ex) { System.out.print("exception "); }
}
```

What is the result?

A. null
B. finally
C. null finally
D. Compilation fails.
E. finally exception

Correct Answer: E

QUESTION 29
Given:

```
static void test() throws RuntimeException {
   try {
      System.out.print("test ");
      throw new RuntimeException();
15.    }
16.    catch (Exception ex) { System.out.print("exception "); }
17. }
18. public static void main(String[] args) {
19.    try { test(); }
20.    catch (RuntimeException ex) { System.out.print("runtime "); }
21.    System.out.print("end ");
22. }
```

What is the result?

A. test end
B. Compilation fails.
C. test runtime end
D. test exception end
E. A Throwable is thrown by main at runtime.

Correct Answer: D

QUESTION 30
Given:

```
1. public class Boxer1 {
2.    Integer i;
3.    int x;
4.    public Boxer1(int y) {
5.       x = i + y;
6.       System.out.println(x);
7.    }
8.    public static void main(String[] args) {
9.       new Boxer1(new Integer(4));
10.   }
11. }
```

What is the result?

A. The value "4" is printed at the command line.
B. Compilation fails because of an error in line 5.
C. Compilation fails because of an error in line 9.
D. A NullPointerException occurs at runtime.
E. A NumberFormatException occurs at runtime.
F. An IllegalStateException occurs at runtime.

Correct Answer: D

QUESTION 31
Given:

```
11. class Converter {
12.   public static void main(String[] args) {
13.     Integer i = args[0];
14.     int j = 12;
15.     System.out.println("It is " + (j==i) + "that j==i.");
16.   }
17. }
```

What is the result when the programmer attempts to compile the code and run it with the command "java Converter 12"?

A. It is true that j == i.
B. It is false that j == i.
C. An exception is thrown at runtime.

D. Compilation fails because of an error in line 13.

Correct Answer: D

QUESTION 32
Given:

```
12. public class Wow {
13.    public static void go(short n) {System.out.println("short"); }
14.    public static void go(Short n) {System.out.println("SHORT");}
15.    public static void go(Long n) {System.out.println(" LONG"); }
16.    public static void main(String [] args) {
17.       Short y= 6;
18.       int z=7;
19.       go(y);
20.       go(z);
21.    }
22. }
```

What is the result?

A. short LONG
B. SHORT LONG
C. Compilation fails.
D. An exception is thrown at runtime.

Correct Answer: C

QUESTION 33
Given:

```
10. class MakeFile {
11.    public static void main(String[] args) {
12.       try {
13.          File directory = new File("d");
14.          File file = new File(directory,"f");
15.          if(!file.exists()) {
16.             file.createNewFile();
17.          }
18.       } catch (IOException e) {
19.          e.printStackTrace();
20.       }
21.    }
22. }
```

The current directory does NOT contain a directory named "d." Which three are true? (Choose three.)

A. Line 16 is never executed.
B. An exception is thrown at runtime.
C. Line 13 creates a File object named "d."
D. Line 14 creates a File object named "f.'
E. Line 13 creates a directory named "d" in the file system.
F. Line 16 creates a directory named "d" and a file `f' within it in the file system.
G. Line 14 creates a file named `f' inside of the directory named "d" in the file system.

Correct Answer: BCD

QUESTION 34
Given:

```
11. double input = 314159.26;
12. NumberFormat nf = NumberFormat.getInstance(Locale.ITALIAN);
13. String b;
```

14. //insert code here

Which code, inserted at line 14, sets the value of b to 3 14.159,26?

A. b = nf.parse(input);
B. b = nf.format(input);
C. b = nf.equals(input);
D. b = nf.parseObject(input);

Correct Answer: B

QUESTION 35
Given:

```
11. String test = "Test A. Test B. Test C.";
12. // insert code here
13. String[] result = test.split(regex);
```

Which regular expression inserted at line 12 will correctly split test into "Test A," "Test B," and "Test C"?

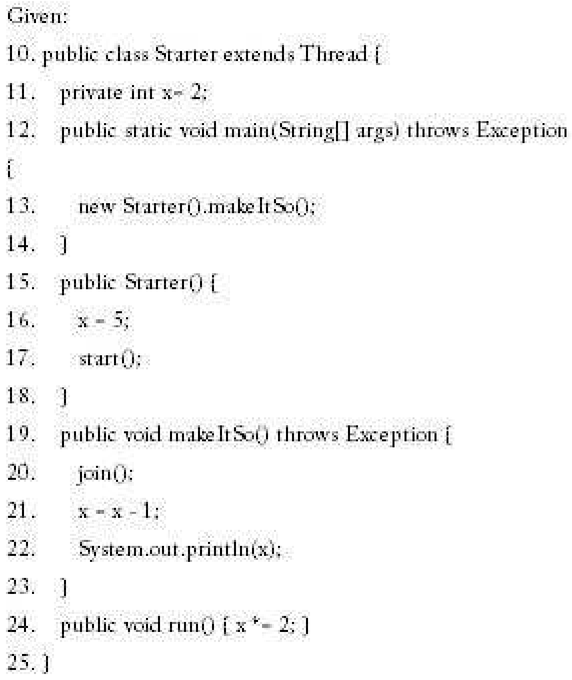
A. String regex = "";
B. String regex = " ";
C. String regex = ".*".
D. String regex = "\\s"
E. String regex = "\\.\\s*";
F. String regex = "\\w[\.] +";

Correct Answer: E

QUESTION 36
Click the Exhibit button.

What is the output if the main() method is rum?

Exhibit:



Given:

```
10. public class Starter extends Thread {
11.    private int x= 2;
12.    public static void main(String[] args) throws Exception
{
13.       new Starter().makeItSo();
14.    }
15.    public Starter() {
16.       x = 5;
17.       start();
18.    }
19.    public void makeItSo() throws Exception {
20.       join();
21.       x = x - 1;
22.       System.out.println(x);
23.    }
24.    public void run() { x *= 2; }
25. }
```

A. 4

B. 5
C. 8
D. 9
E. Compilation fails.
F. An exception is thrown at runtime.
G. It is impossible to determine for certain.

Correct Answer: D

QUESTION 37
Given:

```
1.    interface A { public void aMethod(); }
2.    interface B { public void bMethod(); }
3.    interface C extends A, B { public void cMethod(); }
4.    class D implements B {
5.       public void bMethod() { }
6.    }
7.    class E extends D implements C {
8.       public void aMethod() { }
9.       public void bMethod() { }
10.     public void cMethod() { }
11.  }
```

What is the result?

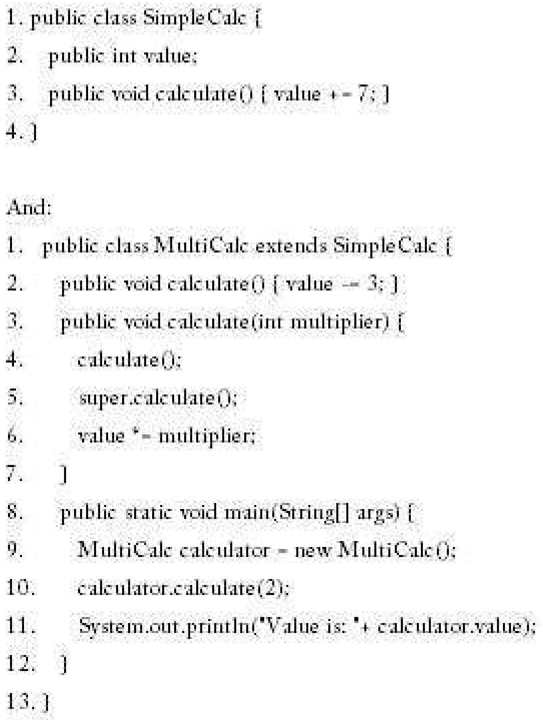
A. Compilation fails because of an error in line 3.
B. Compilation fails because of an error in line 7.
C. Compilation fails because of an error in line 9.
D. If you define D e = new E(), then e.bMethod() invokes the version of bMethod() defined in Line 5.
E. If you define D e = (D)(new E()), then e.bMethod() invokes the version of bMethod() defined in Line 5.
F. If you define D e = (D)(new E()), then e.bMethod() invokes the version of bMethod() defined in Line 9.

Correct Answer: F

QUESTION 38
Click the Exhibit button.

What is the result?

Exhibit:



```
public class SimpleCalc {
    public int value;
    public void calculate() { value += 7; }
}
```

And:

```
public class MultiCalc extends SimpleCalc {
    public void calculate() { value -= 3; }
    public void calculate(int multiplier) {
        calculate();
        super.calculate();
        value *= multiplier;
    }
    public static void main(String[] args) {
        MultiCalc calculator = new MultiCalc();
        calculator.calculate(2);
        System.out.println("Value is: "+ calculator.value);
    }
}
```

A. Value is: 8

B. Compilation fails.
C. Value is: 12
D. Value is: -12
E. The code runs with no output.
F. An exception is thrown at runtime.

Correct Answer: A

QUESTION 39
Given:

```
public class Hello {
   String title;
   int value;
   public Hello() {
      title += " World";
   }
   public Hello(int value) {
      this.value = value;
      title = "Hello ";
      Hello();
   }
}
```

and:

```
Hello c = new Hello(5);
System.out.println(c.title);
```

What is the result?

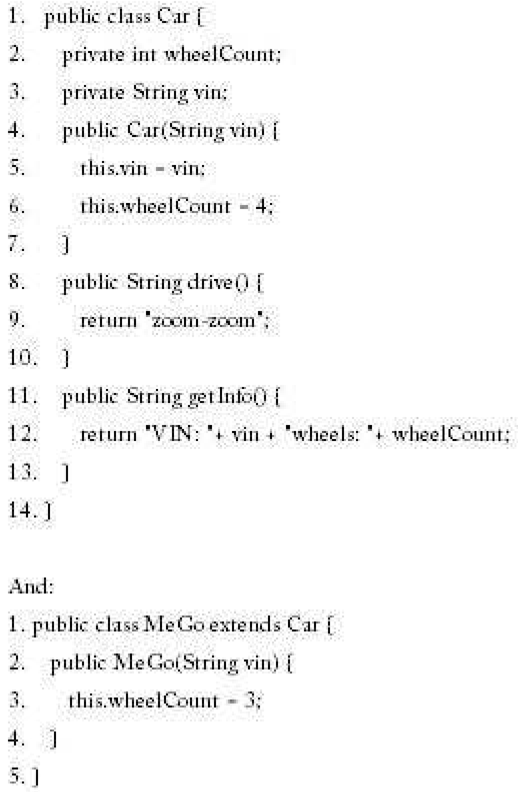
A. Hello
B. Hello World
C. Compilation fails.
D. Hello World 5
E. The code runs with no output.
F. An exception is thrown at runtime.

Correct Answer: C

QUESTION 40
Click the Exhibit button.

What two must the programmer do to correct the compilation errors? (Choose two.)

Exhibit:



```
public class Car {
   private int wheelCount;
   private String vin;
   public Car(String vin) {
      this.vin = vin;
      this.wheelCount = 4;
   }
   public String drive() {
      return "zoom-zoom";
   }
   public String getInfo() {
      return "VIN: "+ vin + "wheels: "+ wheelCount;
   }
}
```

And:

```
public class MeGo extends Car {
   public MeGo(String vin) {
      this.wheelCount = 3;
   }
}
```

A. insert a call to this() in the Car constructor

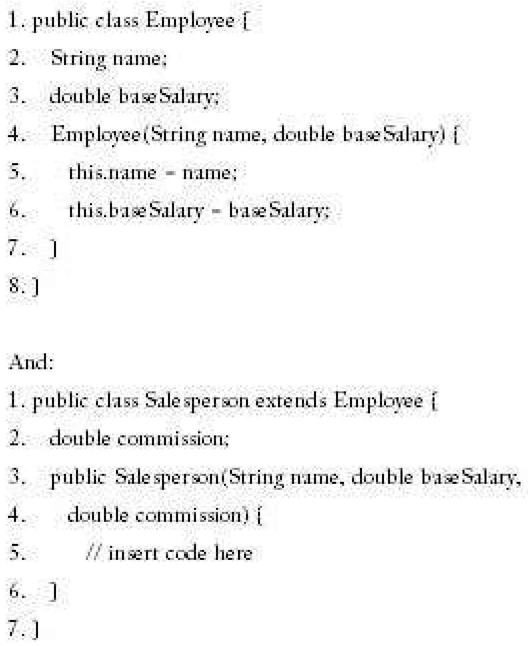
B. insert a call to this() in the MeGo constructor
C. insert a call to super() in the MeGo constructor
D. insert a call to super(vin) in the MeGo constructor
E. change the wheelCount variable in Car to protected
F. change line 3 in the MeGo class to super.wheelCount = 3;

Correct Answer: DE

QUESTION 41
Click the Exhibit button.

Which code, inserted at line 7, completes the Salesperson constructor?

Exhibit:



```
public class Employee {
   String name;
   double baseSalary;
   Employee(String name, double baseSalary) {
      this.name = name;
      this.baseSalary = baseSalary;
   }
}
```

And:

```
public class Salesperson extends Employee {
   double commission;
   public Salesperson(String name, double baseSalary,
      double commission) {
         // insert code here
   }
}
```

A. this.commission = commission;

B. super();
commission = commission;

C. this.commission = commission;
super();

D. super(name, baseSalary);
this.commission = commission;

E. super();
this.commission = commission;

F. this.commission = commission;
super(name, baseSalary);

Correct Answer: D

QUESTION 42
Given:

```
1. public class Blip {
2. protected int blipvert(int x) { return 0; }
3. }
4. class Vert extends Blip {
5. // insert code here
6. }
```

Which five methods, inserted independently at line 5, will compile? (Choose five.)

A. public int blipvert(int x) { return 0; }
B. private int blipvert(int x) { return 0; }
C. private int blipvert(long x) { return 0; }
D. protected long blipvert(int x) { return 0; }
E. protected int blipvert(long x) { return 0; }
F. protected long blipvert(long x) { return 0; }
G. protected long blipvert(int x, int y) { return 0; }

Correct Answer: ACEFG

QUESTION 43
Given:

```
10. public class SuperCalc {
11.    protected static int multiply(int a, int b) { return a * b; }
12. }
```

and:

```
20. public class SubCalc extends SuperCalc {
21.    public static int multiply(int a, int b) {
22.       int c = super.multiply(a, b);
23.       return c;
24.    }
25. }
```

and:

```
30. SubCalc sc = new SubCalc();
31. System.out.println(sc.multiply(3,4));
32. System.out.println(SubCalc.multiply(2,2));
```

What is the result?

A. 12
4

B. The code runs with no output.

C. An exception is thrown at runtime.
D. Compilation fails because of an error in line 21.
E. Compilation fails because of an error in line 22.
F. Compilation fails because of an error in line 31.

Correct Answer: E

QUESTION 44
Which four are true? (Choose four.)

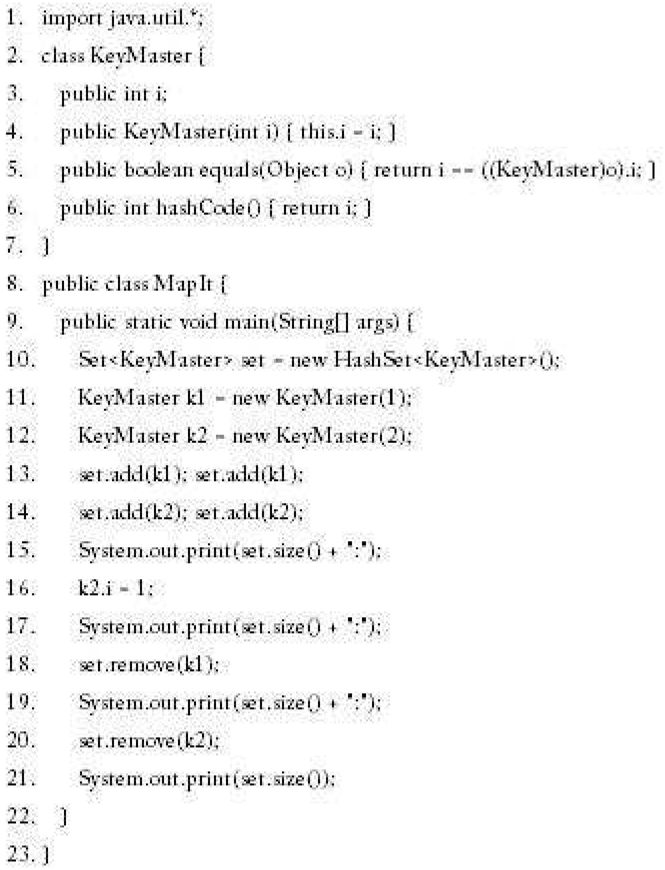
A. Has-a relationships should never be encapsulated.
B. Has-a relationships should be implemented using inheritance.
C. Has-a relationships can be implemented using instance variables.
D. Is-a relationships can be implemented using the extends keyword.
E. Is-a relationships can be implemented using the implements keyword.
F. The relationship between Movie and Actress is an example of an is-a relationship.
G. An array or a collection can be used to implement a one-to-many has-a relationship.

Correct Answer: CDEG

QUESTION 45
Click the Exhibit button.

What is the result?

Exhibit:



```
import java.util.*;
class KeyMaster {
  public int i;
  public KeyMaster(int i) { this.i = i; }
  public boolean equals(Object o) { return i == ((KeyMaster)o).i; }
  public int hashCode() { return i; }
}
public class MapIt {
  public static void main(String[] args) {
    Set<KeyMaster> set = new HashSet<KeyMaster>();
    KeyMaster k1 = new KeyMaster(1);
    KeyMaster k2 = new KeyMaster(2);
    set.add(k1); set.add(k1);
    set.add(k2); set.add(k2);
    System.out.print(set.size() + ":");
    k2.i = 1;
    System.out.print(set.size() + ":");
    set.remove(k1);
    System.out.print(set.size() + ":");
    set.remove(k2);
    System.out.print(set.size());
  }
}
```

A. 4:4:2:2

B. 4:4:3:2
C. 2:2:1:0
D. 2:2:0:0
E. 2:1:0:0
F. 2:2:1:1
G. 4:3:2:1

Correct Answer: F

QUESTION 46
Given this code:

```
1.   import java.util.*;
2.   public class TestSet {
3.      enum Example { ONE, TWO, THREE }
4.      public static void main(String[] args) {
5.         Collection coll = new ArrayList();
6.         coll.add(Example.THREE);
7.         coll.add(Example.THREE);
8.         coll.add(Example.THREE);
9.         coll.add(Example.TWO);
10.       coll.add(Example.TWO);
11.       coll.add(Example.ONE);
12.       Set set = new HashSet(coll);
13.    }
14. }
```

Which statement is true about the set variable on line 12?

A. The set variable contains all six elements from the coll collection, and the order is guaranteed to be preserved.
B. The set variable contains only three elements from the coll collection, and the order is guaranteed to be preserved.
C. The set variable contains all six elements from the coil collection, but the order is NOT guaranteed to be preserved.
D. The set variable contains only three elements from the coil collection, but the order is NOT guaranteed to be preserved.

Correct Answer: D

QUESTION 47
Given a file GrizzlyBear.java:

```
package animals.mammals;

public class GrizzlyBear extends Bear {
   void hunt() {
      Salmon s = findSalmon();
      s.consume();
   }
}
```

and another file, Salmon.java:

```
package animals.fish;

public class Salmon extends Fish {
   void consume() { /* do stuff */ }
}
```

Assume both classes are defined in the correct directories for theft packages, and that the Mammal class correctly defines the findSalmon() method.
Which two changes allow this code to compile correctly? (Choose two.)

A. add public to the start of line 4 in Salmon.java
B. add public to the start of line 4 in GrizzlyBear.java
C. add import animals.mammals.*; at line 2 in Salmon.java
D. add import animals.fish.*; at line 2 in GrizzlyBear.java
E. add import animals.fish.Salmon.*; at line 2 in GrizzlyBear.java
F. add import animals.mammals.GrizzlyBear.*; at line 2 in Salmon.java

Correct Answer: AD

QUESTION 48
Given a correctly compiled class whose source code is:

```
package com.sun.sjcp;
public class Commander {
   public static void main(String[] args) {
      // more code here
   }
}
```

Assume that the class file is located in /foo/com/sun/sjcp/, the current directory is /foo/, and that the classpath contains "." (current directory).
Which command line correctly runs Commander?

A. java Commander
B. java com.sun.sjcp.Commander
C. java com/sun/sjcp/Commander
D. java -cp com.sun.sjcp Commander
E. java -cp com/sun/sjcp Commander

Correct Answer: B

QUESTION 49
Given the command line:

```
java Pass2
```

and:

```
public class Pass2 {
   public void main(String [] args) {
      int x = 6;
      Pass2 p = new Pass2();
      p.doStuff(x);
      System.out.print(" main x = "+ x);
   }

   void doStuff(int x) {
      System.out.print(" doStuffx = "+ x++);
   }
}
```

What is the result?

A. Compilation fails.
B. An exception is thrown at runtime.
C. doStuffx = 6 main x = 6
D. doStuffx = 6 main x = 7
E. doStuffx = 7 main x = 6
F. doStuffx = 7 main x = 7

Correct Answer: B

QUESTION 50
A class games.cards.Poker is correctly defined in the jar file Poker.jar.
A user wants to execute the main method of Poker on a UNIX system using the command:

```
  java games.cards.Poker
```

What allows the user to do this?

A. put Poker.jar in directory /stuff/java, and set the CLASSPATH to include /stuff/java
B. put Poker.jar in directory /stuff/java, and set the CLASSPATH to include /stuff/java/*.jar
C. put Poker.jar in directory /stuff/java, and set the CLASSPATH to include /stuff/java/Poker.jar
D. put Poker.jar in directory /stuff/java/games/cards, and set the CLASSPATH to include /stuff/java
E. put Poker.jar in directory /stuff/java/games/cards, and set the CLASSPATH to include /stuffijava/*.jar
F. put Poker.jar in directory /stuff/java/games/cards, and set the CLASSPATH to include /stuff/java/Poker. jar

Correct Answer: C

QUESTION 51
A developer is creating a class Book that needs to access class Paper.
The Paper class is deployed in a JAR named myLib.jar.

Which three, taken independently, will allow the developer to use the Paper class while compiling the Book class? (Choose three.)

A. The JAR file is located at $JAVA_HOME/jre/classes/myLib.jar.
B. The JAR file is located at $JAVA_HOME/jre/lib/ext/myLib.jar.
C. The JAR file is located at /foo/myLib.jar and a classpath environment variable is set that includes /foo/ myLib.jar/Paper.class.
D. The JAR file is located at /foo/myLib.jar and a classpath environment variable is set that includes /foo/ myLib.jar.
E. The JAR file is located at /foo/myLib.jar and the Book class is compiled using javac -cp /foo/myLib.jar/ Paper Book.java.
F. The JAR file is located at /foo/myLib.jar and the Book class is compiled using javac -d /foo/myLib.jar Book.java.
G. The JAR file is located at /foo/myLib.jar and the Book class is compiled using javac -classpath /foo/ myLib.jar Book.java.

Correct Answer: BDG

QUESTION 52
Given:

```
1. package com.company.application;
2.
3. public class MainClass {
4.    public static void main(String[] args) { }
5. }
```

And MainClass exists in the /apps/com/company/application directory.

Assume the CLASSPATH environment variable is set to "." (current directory). Which two java commands entered at the command line will run MainClass?
(Choose two.)

A. java MainClass if run from the /apps directory
B. java com.company.application.MainClass if run from the /apps directory
C. java -classpath /apps com.company.application.MainClass if run from any directory
D. java -classpath . MainClass if run from the /apps/com/company/application directory

E. java -classpath /apps/com/company/application:. MainClass if run from the /apps directory
F. java com.company.application.MainClass if run from the /apps/com/company/application directory

Correct Answer: BC

QUESTION 53
Given:

```
public class Foo {
   public int a;
   public Foo() { a = 3; }
   public void addFive() { a += 5; }
}
```

and:

```
public class Bar extends Foo {
   public int a;
   public Bar() { a = 8; }
   public void addFive() { this.a +=5; }
}
```

invoked with:

```
Foo foo = new Bar();
foo.addFive();
System.out.println("Value: "+ foo.a);
```

What is the result?

A. Value: 3
B. Value: 8
C. Value: 13
D. Compilation fails.
E. The code runs with no output.
F. An exception is thrown at runtime.

Correct Answer: A

QUESTION 54
Which two code fragments will execute the method doStuff() in a separate thread? (Choose two.)

A. new Thread() { public void run() { doStuff() ;} };
B. new Thread() { public void start() { doStuff() ;} };
C. new Thread() { public void start() { doStuff() ;} }.run();
D. new Thread() { public void run() { doStuff(); } }.start();
E. new Thread(new Runnable() { public void run() { doStuff(); } }).run();
F. new Thread(new Runnable() { public void run() { doStuff(); }}).start();

Correct Answer: DF

QUESTION 55
Given:

```
public class TestOne implements Runnable {
   public static void main (String[] args) throws Exception {
      Thread t = new Thread(new TestOne());
      t.start();
      System.out.print("Started");
      t.join();
      System.out.print("Complete");
   }
   public void run() {
      for (int i= 0; i< 4; i++) {
      System.out.print(i);
```

```
    }
  }
}
```

What can be a result?

A. Compilation fails
B. An exception is thrown at runtime
C. The code executes and prints "StartedComplete"
D. The code executes and prints "StartedComplete0123"
E. The code executes and prints "Started0123Complete"

Correct Answer: E

QUESTION 56
Given:

```
public class Threads3 implements Runnable {
    public void run() {
       System.out.print("running");
    }
    public static void main(String[] args) {
       Thread t = new Thread(new Threads3());
       t.run();
       t.run();
       t.start();
   }
}
```

What is the result?

A. Compilation fails.
B. An exception is thrown at runtime
C. The code executes and prints " running"
D. The code executes and prints "runningrunning"
E. The code executes and prints "runningrunninigrunning"

Correct Answer: E

QUESTION 57
Given:

```
public class TwoThreads {

   private static Object resource = new Object();

   private static void delay(long n) {
      try { Thread.sleep(n); }
      catch (Exception e) { System.out.print("Error "); }
   }

  public static void main(String[] args) {
     System.out.print("StartMain ");
     new Thread1().start();
     delay(1000);
     Thread t2 = new Thread2();
     t2.start();
     delay(1000);
     t2.interrupt();
     delay(1000);
     System.out.print("EndMain ");
  }

  static class Thread1 extends Thread {
     public void run() {
        synchronized (resource) {
           System.out.print("Startl ");
           delay(6000);
           System.out.print("End1 ");
        }
     }
  }

  static class Thread2 extends Thread {
     public void run() {
        synchronized (resource) {
           System.out.print("Start2 ");
           delay(2000);
           System.out.print("End2 ");
        }
      }
   }
}
```

Assume that sleep(n) executes in exactly m milliseconds, and all other code executes in an insignificant amount of time.
What is the output if the main() method is run?

A. Compilation fails.
B. Deadlock occurs.
C. StartMain Start1 Error EndMain End1
D. StartMain Start1 EndMain End1 Start2 End2
E. StartMain Start1 Error Start2 EndMain End2 End1
F. StartMain Start1 Start2 Error End2 EndMain End1
G. StartMain Start1 EndMain End1 Start2 Error End2

Correct Answer: G

QUESTION 58
Click the Exhibit button.

What is the output if the main() method is rum?

Exhibit:

Given:

```
public class Starter extends Thread {
  private int x= 2;
  public static void main(String[] args) throws Exception {
    new Starter().makeItSo();
  }
  public Starter() {
    x = 5;
    start();
  }
  public void makeItSo() throws Exception {
    join();
    x = x - 1;
    System.out.println(x);
  }
  public void run() { x *= 2; }
}
```

A. 4

B. 5

C. 8

D. 9

E. Compilation fails.

F. An exception is thrown at runtime.

G. It is impossible to determine for certain.

Correct Answer: D

QUESTION 59

Given:

```
public class Threads4 {
    public static void main (String[] args) {
        new Threads4().go();
    }
    public void go() {
        Runnable r = new Runnable() {
            public void run() {
                System.out.print("foo");
            }
        };
        Thread t = new Thread(r);
        t.start();
        t.start();
    }
}
```

What is the result?

A. Compilation fails.

B. An exception is thrown at runtime.

C. The code executes normally and prints `foo".

D. The code executes normally, but nothing is printed.

Correct Answer: B

QUESTION 60

Given:

```
class Computation extends Thread {

    private int num;
    private boolean isComplete;
    private int result;

    public Computation(int num) { this.num = num; }

    public synchronized void run() {
        result = num * 2;
        isComplete = true;
        notify();
    }

    public synchronized int getResult() {
        while (!isComplete) {
            try {
                wait();
            } catch (InterruptedException e) { }
        }
        return result;
    }

    public static void main(String[] args) {
        Computation[] computations = new Computation [4];
        for (int i = 0; i < computations.length; i++) {
            computations[i] = new Computation(i);
            computations[i] .start();
        }
        for (Computation c : computations)
            System.out.print(c.getResult() +" ");
    }
}
```

What is the result?

A. The code will deadlock.

B. The code may run with no output.

C. An exception is thrown at runtime.

D. The code may run with output "0 6".

E. The code may run with output "2 0 6 4".

F. The code may ruin with output "0 2 4 6".

Correct Answer: F