SELF TEST

The following questions will help you measure your understanding of the material presented in this chapter. Read all of the choices carefully, as there may be more than one correct answer. Choose all correct answers for each question.

Declarations and Modifiers (Sun Objective 1.2)

1. What is the most restrictive access modifier that will allow members of one class to have access to members of another class in the same package?

A. public
B. abstract
C. protected
D. synchronized
E. default access

2. Given a method in a public class, what access modifier do you use to restrict access to that method to only the members of the same class?

A. final
B. static
C. private
D. protected
E. volatile
F. default access

3. Given the following,

```
1.  abstract class A {
2.      abstract short m1 ( ) ;
3.      short m2 ( )  {  return (short)  420;   }
4.  }
5.
6.  abstract class B extends A {
7.      // missing code ?
8.      short m1 ( )  { return (short) 42; }
9.  }
```

Which three of the following statements are true? (Choose three.)

A. The code will compile with no changes.
B. Class B must either make an abstract declaration of method m2 ( ) or implement method m2 ( ) to allow the code to compile.
C. It is legal, but not required, for class B to either make an abstract declaration of method m2 ( ) or implement method m2 ( ) for the code to compile.
D. As long as line 8 exists, class A must declare method m1 ( ) in some way.
E. If line 6 were replaced with `class B extends A { `the code would compile.

F. If class A was not abstract and method m1 ( ) on line 2 was implemented, the code would not compile.

4. Which two of the following are legal declarations for nonnested classes and interfaces? (Choose two.)

A. final abstract class Test { }
B. public static interface Test { }
C. final public class Test { }
D. protected abstract class Test { }
E. protected interface Test { }
F. abstract public class Test { }

5. How many of the following are legal method declarations?

1 – protected abstract void m1 ( ) ;
2 – static final void m1 ( ) { }
3 – transient private native void m1 ( ) { }
4 – synchronized public final void m1 ( ) { }
5 – private native void m1 ( ) ;
6 – static final synchronized protected void m1 ( ) { }

A. 1
B. 2
C. 3
D. 4
E. 5
F. All of them

6. Given the following,

```
1.  package testpkg.p1;
2.  public class ParentUtil  {
3.      public int x = 420 ;
4.      protected int doStuff ( )  { return x; }
5.  }
```

```
1.  package testpkg.p2;
2.  import testpkg.p1.ParentUtil;
3.  public class ChildUtil extends ParentUtil {
4.      public static void main (String [ ] args) {
5.          new ChildUtil ( ).callStuff ( ) ;
6.      }
7.      void callStuff ( )  {
8.          System.out.print ("this " + this.doStuff ( )  ) ;
9.          ParentUtil p = new ParentUtil ( ) ;
10.         System.out.print ( " parent " + p.doStuff ( )  ) ;
11.     }
12. }
```

Which statement is true?

A. The code compiles and runs, with output this 420 parent 420.
B. If line 8 is removed, the code will compile and run.
C. If line 10 is removed, the code will compile and run.
D. Both lines 8 and 10 must be removed for the code to compile.
E. An exceptions is thrown at runtime.

Declaration Rules (Sun Objective 4.1)

7. Given the following,

```
1.  interface Count  {
2.     short counter = 0 ;
3.     void countUp ( ) ;
4.  }
5.  public class TestCount implements Count {
6.
7.     public static void main (String [ ] args)  {
8.           TestCount t = new TestCount ( ) ;
9.           t.countUp ( ) ;
10.    }
11.    public void countUp ( ) {
12.          for (int x = 6 ; x>counter; x--, ++counter)  {
13.                System.out.print (" " + counter) ;
14.          }
15.    }
16. }
```

What is the result?

A. 0 1 2
B. 1 2 3
C. 0 1 2 3
D. 1 2 3 4
E. Compilation fails
F. An exception is thrown at runtime

8. Given the following,

```
1.  import java.util.* ;
2.  public class NewTreeSet2 extends NewTreeSet {
3.     public static void main (String [ ] args) {
4.           NewTreeSet2 t = new NewTreeSet2 ( ) ;
5.           t.count ( ) ;
6.     }
7.  }
8.  protected class NewTreeSet  {
9.     void count ( )  {
10.          for (int x = 0; x < 7; x++, x++ )  {
```

```
11.                     System.out.print (“ “ + x) ;
12.                 }
13.             }
14.         }
```

What is the result?

A. 0 2 4
B. 0 2 4 6
C. Compilation fails at line 4
D. Compitation fails at line 5
E. Compilation fails at line 8
F. Compilation fails at line 10

9. Given the following,

```
1.
2.      public class NewTreeSet extends java.util.TreeSet {
3.          public static void main (String [ ] args)  {
4.                  java.util.TreeSet t = new java.util.TreeSet ( ) ;
5.                  t.clear ( ) ;
6.          }
7.          public void clear ( ) {
8.                  TreeMap m = new TreeMap ( ) ;
9.                  m.clear ( ) ;
10.         }
11.     }
```

Which two statements, added independently at line 1, allow the code to compile? (Choose two.)

A. No statement is required
B. import java.util.* ;
C. import.java.util.Tree* ;
D. import java.util.TreeSet ;
E. import java.util.TreeMap ;

10. Which two are valid declarations within an interface? (Choose two.)

A. public static short stop = 23 ;
B. protected short stop = 23 ;
C. transient short stop = 23 ;
D. final void madness (short stop) ;
E. public Boolean madness (long bow) ;
F. static char madness (double duty);

11. Which of the following class level (*nonlocal*) variable declarations will not compile?

A. protected int a ;

B. transient int b = 3;
C. public static final int c;
D. volatile int d;
E. private synchronized int e;

Interface Implementation (Sun Objective 4.2)

12. Given the following,

```
1.      interface DoMath {
2.          double getArea (int rad) ;  }
3.
4.       interface MathPlus  {
5.          double getVol (int b, int h) ;  }
6.
7.
8.
```

Which two code fragments inserted at lines 7 and 8 will compile? (Choose two.)

A. class AllMath extends DoMath {
public double getArea (int r) ; }
B. interface AllMath implements MathPlus {
public double getVol (int x, int y) ;]
C. interface AllMath extendes DoMath {
public float getAvg (int h, int 1) ; }
D. class AllMath implements MathPlus {
public double getArea (int rad) ; }
E. abstract class AllMath implements DoMath, MathPlus {
public double getArea (int rad) { return rad * rad * 3.14; } }

13. Which three are valid method signatures in an interface? (Choose three.)

A. private int getArea ( ) ;
B. public float getVol (float x) ;
C. public void main (String [ ] args) ;
D. public static void main (String [ ] args) ;
E. Boolean setFlag (Boolean [ ] test [ ]) ;

14. Which two statements are true for any concrete class implementing the Java.lang.Runnable interface? (Choose two.)

A. You can extend the Runnable interface as long as you override the public run( ) method.
B. The class must contain a method called run ( ) from which all code for that thread will be initiated.
C. The class must contain an empty public void method named run ( ).
D. The class must contain a public void method named runnable ( )
E. The class definition must include the words implements Threads and contain a method called run ( ) .

F. The mandatory method must be public, with a return type of void, must be called run ( ), and cannot take any arguments.

15. Given the following,

```
1.    interface Base {
2.       boolean m1 ( );
3.       byte m2 (short s);
4.    }
```

Which two code fragments will compile? (Choose two.)

A. interface Base2 implements Base { }
B. abstract class Class2 extends Base {
public boolean m1 ( ) {return true; } }
C. abstract class Class2 implements Base { }
D. abstract class Class2 implements Base {
public boolean m1 ( ) { return (7 > 4) ; } }
E. class Class2 implements Base {
boolean m1 ( ) { return false ; }
byte m2 (short s) { return 42; } }