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.

Using the java.lang.String Class (Exam Objective 8.2)

1. Given the following,

```
1.  public class StringRef  {
2.     public static void main (String [ ] args)  {
3.           String s1 = "abc";
4.           String s2 = "def";
5.           String s3 = s2;
6.           s2 = "ghi";
7.           System.out.println(s1 + s2 + s3);
8.     }
9.  }
```

What is the result?

A. abcdefghi
B. abcdefdef
C. abcghidef
D. abcghighi
E. Compilation fails.
F. An exception is thrown at runtime.

2. Given the following,

```
11.  String x = "xyz";
12.  x.toUpperCase ( );
13.  String y = x.replace ('Y', 'y');
14.  y = y + "abc";
15.  System.out.println (y);
```

What is the result?

A. abcXyZ
B. abcxyz
C. xyzabc
D. XyZabc
E. Compilation fails.
F. An exception is thrown at runtime.

3. Given the following,

```
13.  String x = new String ("xyz");
14.  y = "abc";
```

```
15.    x = x + y;
```

how many String objects have been created?

A. 2
B. 3
C. 4
D. 5

4. Given the following,

```
14.    String a = “newspaper”;
15.    a = a.substring (5, 7);
16.    char b = a.charAt (1);
17.    a = a + b
18.    System.out.println (a);
```

What is the result?

A. apa
B. app
C. apea
D. apep
E. papp
F. papa

5. Given the following,

```
4.    String d = “bookkeeper”;
5.    d.substring (1, 7);
6.    d = “w” + d;
7.    d.append (“woo”);
8.    System.out.println (d);
```

What is the result?

A. wookkeewoo
B. wbookkeeper
C. wbookkeewoo
D. wbookkeeperwoo
E. Compilation fails.
F. An exception is thrown at runtime.

Using the java.lang.Math Class (Exam Objecrive 8.1)

6. Given the following,

```
1.    public class Example  {
2.       public static void main (String [ ] args)  {
3.             double values [ ] = { -2.3, -1.0, 0.25, 4};
```

```
4.              int cnt = 0;
5.              for (int x=0; x < values.length; x++)  {
6.                 if (Math.round (values [x] + .5) = = Math.ceil(values [x]))  {
7.                       ++cnt;
8.                 }
9.              }
10.          System.out.println(“same results “ + cnt + “ time(s)”);
11.       }
12.    }
```

What is the result?

A. same results 0 time(s)
B. same results 2 time(s)
C. same results 4 time(s)
D. Compilation fails
E. An exception is thrown at runtime.

7. Which of the following are valid calls to Math.max? (Choose all that apply.) (Yeah, yeah, we know that on the *real* exam you'd know how many were correct, but we just want you to work a little harder here.)

A. Math.max (1,4)
B. Math.max (2.3, 5)
C. Math.max (1, 3, 5, 7)
D. Math.max (-1.5, -2.8f)

8. What two statements are true about the result obtained from calling Math.random ( )? (Choose two.)

A. The result is less than 0.0.
B. The result is greater than or equal to 0.0.
C. The result is less than 1.0.
D. The result is greater than 1.0.
E. The result is greater than or equal to 1.0.
F. The result is less than or equal to 1.0.

9. Given the following,

```
1.    public class SqrtExample  {
2.       public static void main (String [ ] args)  {
3.             double value = -9.0;
4.             System.out.println ( Math.sqrt (value) ) ;
5.       }
6.    }
```

What is the result?

A. 3.0

B. -3.0
C. NaN
D. Compilation fails.
E. An exception is thrown at runtime.

10. Given the following,

```
1.    public class Degrees  {
2.       public static void main (String [ ] args)  {
3.             System.out.println ( Math.sin (75)  ) ;
4.             System.out.println ( Math.toDegrees (Math.sin (75)  ));
5.             System.out.println ( Math.sin (Math.toRadians (75)  ));
6.             System.out.println (Math.toRadians (Math.sin (75)  ));
7.       }
8.    }
```

At what line will the sine of 75 degrees be output?

A. Line 3
B. Line 4
C. Line 5
D. Line 6
E. Line 3 and either line 4, 5, or 6
F. None of the above

Using Wrapper Classes (Exam Objective 8.3)

11. Given the following,

```
1.    public class WrapTest2  {
2.       public static void main (String [ ] args)  {
3.             Long b = new Long (42);
4.             int x = Integer.valueOf (“345”);
5.             int x2 = (int) Integer.parseInt (“345”);
6.             int x3 = Integer.parseInt (42) ;
7.             int x4 = Integer.parseInt (“42”);
8.             int x5 = b.intValue ( );
9.       }
10.   }
```

Which two lines will cause compiler errors? (Choose two.)

A. Line 3
B. Line 4
C. Line 5
D. Line 6
E. Line 7
F. Line 8

12. Given the following,

```
1.    public class NFE  {
2.       public static void main (String [ ] args)  {
3.             String s = “42” ;
4.             try  {
5.                s = s.concat (“.5”);
6.                double d = Double.parseDouble (s);
7.                s = Double.toString (d) ;
8.                int x = (int) Math.ceil (Double.valueOf (s) .doubleValue ( )) ;
9.                System.out.println (x);
10.            }
11.            catch (NumberFormaException e)  {
12.               System.out.println (“bad number”) ;
13.            }
14.      }
15.   }
```

What is the result?

A. 42
B. 42.5
C. 43
D. bad number
E. Compilation fails.
F. An uncaught exception is thrown at runtime.

13. Given the following,

```
1.    public class BoolTest  {
2.       public static void main (String [ ] args)  {
3.             Boolean b1 = new Boolean (“false”) ;
4.             boolean b2 ;
5.             b2 = b1.booleanValue ( );
6.             if ( !b2)  {
7.                b2 = true;
8.                System.out.print (“x “) ;
9.             }
10.            if (b1 & b2)  {
11.               System.out.print (“y “) ;
12.            }
13.            System.out.println (“z”) ;
14.      }
15.   }
```

What is the result?

A. z
B. x z
C. y z

D. x y z
E. Compilation fails.
F. An exception is thrown at runtime

14. Given the following,

```
1.    public class WrapTest3  {
2.       public static void main (String [ ] args)  {
3.             String s = “98.6”;
4.             // insert code here
5.       }
6.    }
```

Which three lines inserted independently at line 4 will cause compiler errors? (Choose three.)

A. float f1 = Float.floatValue (s) ;
B. float f2 = Float.valueOf (s);
C. float f3 = new Float (3.14f) . floatValue ( );
D. float f4 = Float.parseFloat (1.23f) ;
E. float f5 = Float.valueOf (s) . floatValue ( );
F. float f6 = (float) Double.parseDouble (“3.14”) ;

15. Given the following,

```
11.   try  {
12.      Float f1 = new Float (“3.0”);
13.      int x = f1.intValue ( );
14.      byte b = f1.byteValue ( );
15.      double d = f1.doubleValue ( );
16.      System.out.println (x + b + d);
17.   }
18.   catch  (NumberFormatException e)  {
19.      System.out.println (“bad number”);
20.   }
```

What is the result?

A. 9.0
B. bad number
C. Compilation fails on line 13.
D. Compilation fails on line 14.
E. Compilation fails on lines 13 and 14.
F. An uncaught exception is thrown at runtime.

Using equals( ) (Exam Objective 5.2)

16. Given the following,

```
1.    public class WrapTest  {
2.       public static void main (String [ ] args)  {
3.             int result = 0;
4.             short s = 42;
5.             Long x = new Long (“42”);
6.             Long y = new Long (42);
7.             Short z = new Short (“42”);
8.             Short x2 = new Short (s);
9.             Integer y2 = new Integer (“42”);
10            Integer z2 = new Integer (42);
11.
12.            if (x = = y) result = 1;
13.            if (x.equals (y)  ) result = result + 10;
14.            if (x.equals (z)  ) result = result + 100;
15.            if (x.equals (x2)  ) result = result + 1000;
16.            if (x.equals (z2)  ) result = result + 10000;
17.
18.            System.out.println (“result = “ + result);
19.       }
20.   }
```

What is the result?

A. result = 1
B. result = 10
C. result = 11
D. result = 11010
E. result = 11011
F. result = 11111

17. Given the following,

```
1.    public class BoolTest  {
2.       public static void main (String [ ] args)  {
3.             int result = 0;
4.
5.             Boolean b1 = new Boolean (“TRUE”);
6.             Boolean b2 = new Boolean (“true”);
7.             Boolean b3 = new Boolean (“tRuE”);
8.             Boolean b4 = new Boolean (“false”);
9.
10.            if (b1 = = b2)  result = 1;
11.            if (b1.equals (b2)  ) result = result + 10;
12.            if (b2 = = b4)  result = result + 100;
13.            if (b2.equals (b4)  )  result = result + 1000;
14.            if (b2.equals (b3)  )  result = result + 10000;
```

```
15.
16.             System.out.println ("result = " + result);
17.         }
18.     }
```

What is the result?

A. 0
B. 1
C. 10
D. 1100
E. 10001
F. 10010

18. Given the following,

```
1.      public class ObjComp  {
2.         public static void main (String [ ] args)  {
3.             int result = 0;
4.             ObjComp oc = new ObjComp ( );
5.             Object o = oc;
6.
7.             if (o = = oc)  result = 1;
8.             if (o != oc)  result = result + 10;
9.             if (o.equals (oc)  )  result = result + 100;
10.            if (oc.equals (o)  )  result = result + 1000;
11.
12.            System.out.println ("result = " + result);
13.        }
14.    }
```

What is the result?

A. 1
B. 10
C. 101
D. 1001
E. 1101

19. Which two statements arte true about wrapper or String classes? (Choose two.)

A. If *x* and *y* refer to instances of different wrapper classes, then the fragment x.equals (y) will cause a compiler failure.
B. If *x* and *y* refer to instances of different wrapper classes, then *x*== *y* can sometimes be true.
C. If *x* and *y* are String references and if x.equals (y) is true, then *x* = = *y* is true.
D. If *x*, *y*, and *z* refer to instances of wrapper classes and x.equals (y) is true, and y.equals (z) is true, then z.equals (x) will always be true.
E. If *x* and *y* are String references and *x* = = *y* is true, then y.equals (x) will be true.