1. Given the following,

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

Which code fragments will compile? (Choose all that apply.)

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

2. Which declare a compilable abstract class? (Choose all that apply.)

A. public abstract class Canine { public Bark speak(); }
B. public abstract class Canine { public Bark speak() { } }
C. public class Canine { public abstract Bark speak(); }
D. public class Canine abstract { public abstract Bark speak(); }

3. Given:

```
class Clidders {
   public final void flipper() { System.out.println("Clidder"); }
}
public class Clidlets extends Clidders {
   public void flipper() {
      System.out.println("Flip a Clidlet");
      super.flipper();
   }
   public static void main(String [] args) {
      new Clidlets().flipper();
   }
}
```

What is the result?

A. Flip a Clidlet
B. Flip a Clidder
C. Flip a Clidder
   Flip a Clidlet
D. Flip a Clidlet
   Flip a Clidder
E. Compilation fails.

4. Given:

```
class Top {
```

```
   public Top(String s) { System.out.print("B"); }
}
public class Bottom2 extends Top {
   public Bottom2(String s) { System.out.print("D"); }
   public static void main(String [] args) {
      new Bottom2("C");
      System.out.println(" ");
   }
}
```

What is the result?

A. BD
B. DB
C. BDC
D. DBC
E. Compilation fails.

5. Given:

```
1. class Zing {
2.     protected Hmpf h;
3. }
4. class Woop extends Zing { }
5. class Hmpf { }
```

Which is true? (Choose all that apply.)

A. Woop is-a Hmpf and has-a zing.
B. zing is-a Woop and has-a Hmpf.
C. Hmpf has-a Woop and Woop is-a Zing.
D. Woop has-a Hmpf and Woop is-a zing.
E. Zing has-a Hmpf and Zing is-a Woop

6. Given:

```
1. class Programmer {
2.     Programmer debug() { return this; }
3. }
4. class SCJP extends Programmer {
5.     // insert code here
6. }
```

Which, inserted at line 5, will compile? (Choose all that apply.)

A. Programmer debug() { return this; }
B. SCJP debug() { return this; }
C. Object debug() { return this; }
D. int debug() { return 1; }
E. int debug(int x) { return 1; }
F. Object debug (int x) { return this; }

7. Given:

```
class Uber {
   static int y = 2;
   Uber(int x) { this(); y = y * 2; }
   Uber() { y++; }
}
class Minor extends Uber {
   Minor() { super(y); y = y + 3; }
   public static void main(String [] args) {
      new Minor();
      System.out.println(y);
} }
```

What is the result?

A. 6
B. 7
C. 8
D. 9
E. Compilation fails.
F. An exception is thrown.

8. Given:

```
1. class Dog { }
2. class Beagle extends Dog { }
3.
4. class Kennel {
5.     public static void main(String [] arfs) {
6.         Beagle bl = new Beagle();
7.         Dog dogl = new Dog();
8.         Dog dog2 = bl;
9.         // insert code here
10. } }
```

Which, inserted at line 9, will compile? (Choose all that apply.)

A. Beagle b2 = (Beagle) dog1;
B. Beagle b3 = (Beagle) dog2;
C. Beagle b4 = dog2;
D. None of the above statements will compile.

9. Given the following,

```
1. class X { void dol() { } }
2. class Y extends X { void do2() { } }
3.
4. class Chrome {
5.     public static void main(String [] args) {
6.         X x1 = new X();
7.         X x2 = new Y();
8.         Y y1 = new Y();
9.         // insert code here
10. } }
```

Which, inserted at line 9, will compile? (Choose all that apply.)

A. x2.do2( );
B. (Y) x2. do2( );
C. ((Y)x2).do2();
D. None of the above statements will compile.

10. Given:

```
class Scoop {
   static int thrower() throws Exception { return 42; }
   public static void main(String [] args) {
      try {
         int x = thrower();
      } catch (Exception e) {
         X++;
      } finally {
         System.out.printIn("x = " + ++x);
} } }
```

What is the result?

A. x = 42
B. x = 43
C. x = 44
D. Compilation fails.
E. The code runs with no output.

11. Given:

```
class CardBoard {
   Short story = 5;
   CardBoard go(CardBoard cb) {
      cb = null;
      return cb;
   }
   public static void main(String[] args) {
      CardBoard c1 = new CardBoard();
      CardBoard c2 = new CardBoard();
      CardBoard c3 = c1.go(c2);
      c1 = null;
      // do Stuff
} }
```

When // doStuff is reached, how many objects are eligible for GC?

A. 0
B. 1
C. 2
D. Compilation fails.
E. It is not possible to know.
F. An exception is thrown at runtime.

12. Given:

```
class Mixer {
   Mixer() { }
   Mixer(Mixer m) { ml = m;}
```

```
   Mixer m1;
   public static void main(String[] args) {
      Mixer m2 = new Mixer();
      Mixer m3 = new Mixer(m2);    m3.go();
      Mixer m4 = m3.m1;             m4.go();
      Mixer m5 = m2.m1;             m5.go();
   }
   void go() { System.out.print("hi "); }
}
```

What is the result?

A. hi
B. hi hi
C. hi hi hi
D. Compilation fails
E. hi, followed by an exception
F. hi hi, followed by an exception

13. Which is true? (Choose all that apply.)

A. The invocation of an object's finalize() method is always the last thing that happens before an object is garbage collected (GCed).
B. When a stack variable goes out of scope it is eligible for GC.
C. Some reference variables live on the stack, and some live on the heap.
D. Only objects that have no reference variables referring to them can be eligible for GC.
E. It's possible to request the GC via methods in either java. lang. Runtime or java.lang.System classes.

14. Given:

```
class Bird {
   { System.out.print("bl "); }
   public Bird() { System.out.print("b2 "); }
}
class Raptor extends Bird {
   static { System.out.print("r1 "); }
   public Raptor() { System.out.print("r2 "); }
   { System.out.print("r3 "); }
   static { System.out.print("r4 "); }
}
class Hawk extends Raptor {
   public static void main(String[] args) {
      System.out.print("pre ");
      new Hawk();
      System.out.println("hawk ");
   }
}
```

What is the result?

A. pre b1 b2 r3 r2 hawk
B. pre b2 b1 r2 r3 hawk
C. pre b2 b1 r2 r3 hawk r1 r4
D. r1 r4 pre b1 b2 r3 r2 hawk

E. r1 r4 pre b2 b1 r2 r3 hawk
F. pre r1 r4 b1 b2 r3 r2 hawk
G. pre r1 r4 b2 b1 r2 r3 hawk
H. The order of output cannot be predicted.
I. Compilation fails.

15. Given:

```
class Feline {
   public static void main(String[] args) {
      Long x = 42L;
      Long y = 44L;
      System.out.print (" " + 7 + 2 + " ") ;
      System.out.print(foo () + x + 5 + " ");
      System.out.println(x + y + foo());
   }
   static String foo() { return "foo"; }
}
```

What is the result?

A. 9 foo47 86foo
B. 9 foo47 4244foo
C. 9 foo425 86foo
D. 9 foo425 4244foo
E. 72 foo47 86foo
F. 72 foo47 4244foo
G. 72 foo425 86foo
H. 72 foo425 4244foo
I. Compilation fails.

16. Given:

```
class Emu {
   static String s = "-";
   public static void main(String[] args) {
      try {
         throw new Exception();
      } catch (Exception e) {
            try {
               try { throw new Exception();
               } catch (Exception ex) { s += "ic "; }
               throw new Exception(); }
            catch (Exception x) { s += "mc "; }
            finally { s += "mf "; }
      } finally { s += "of "; }
      System.out.println(s);
} }
```

What is the result?

A. -ic of
B. -mf of
C. -mc mf
D. -ic mf of
E. -ic mc mf of

F. -ic mc of mf
G. Compilation fails.

17 Given:

```
 2.  class MyThread extends Thread {
 3.      public static void main(String [] args) {
 4.          MyThread t = new MyThread();
 5.          t.start() ;
 6.          System.out.print("one. ");
 7.          t.start();
 8.          System.out.print("two. ");
 9.      }
10.      public void run() {
11.          System.out.print("Thread "};
12.      }
13.  }
```

What is the result of this code?

A. Compilation fails.
B. An exception occurs at runtime.
C. Thread one. Thread two.
D. The output cannot be determined.

18. Assume you have a class that holds two private variables: a and b. Which of the following pairs can prevent concurrent access problems in that class? (Choose all that apply.)

A. public int read(){return a+b;}
   public void set(int a, int b){this.a=a;this.b=b;}
B. public synchronized int read(){return a+b;}
   public synchronized void set(int a, int b){this.a=a;this.b=b;}
C. public int read(){synchronized(a){return a+b;}}
   public void get(int a, int b){synchronized(a){this.a=a;this.b=b;}}
D. public int read(){synchronized(a){return a+b;}}
   public void set(int a, int b){synchronized(b){this.a=a;this.b=b;}}
E. public synchronized(this) int read(){return a+b;}
   public synchronized(this) void set(int a, int b){this.a=a;this.b=b;}
F. public int read () {synchronized (this) {return a+b;}}
   public void set(int a, int b){synchronized(this){this.a=a;this.b=b;}}

19. Given the following directory structure:

```
org
  | -- Robot.class
  |
  | -- ex
         |-- Pet.class
         |
         |-- why
                |-- Dog.class
```

And the following source file:

```
class MyClass {
```

```
   Robot r;
   Pet p;
   Dog d;
}
```

Which statement(s) *must* be added for the source file to compile? (Choose all that apply.)

A. package org;
B. import org.*;
C. package org.*;
D. package org.ex;
E. import org.ex.*;
F. package org.ex.why;
G. package org.ex.why.Dog;

20. Given:

```
1. class Crivitch {
2.     public static void main(String [] args) {
3.         int x = 0;
4.         // insert code here
5.         do { } while (x++ < y);
6.         System.out.println(x);
7.     }
8. }
```

Which, inserted at line 4, produces the output 12?

A. int y = x;
B. int y = 10;
C. int y = 11;
D. int y = 12;
E. int y = 13;
F. None of the above will allow compilation to succeed.