Like the previous chapter, this one contains 50 questions and is designed to simulate a real 1Z0-819 exam. Ready with your scratch paper and 90 minutes? Good luck!

1. What is the output of the following application?

```
1:  package fruit;
2:  enum Season {
3:     SPRING(1), SUMMER(2), FALL(3), WINTER(4);
4:     public Season(int orderId) {}
5:  }
6:  public class PickApples {
7:     public static void main(String... orchard) {
8:        final Season s = Season.FALL;
9:        switch(s) {
10:          case Season.FALL:
11:             System.out.println("Time to pick!");
12:          default:
13:             System.out.println("Not yet!");
14:       }
15:    }
16: }
```

A. `Time to pick!`

B. `Time to pick!` followed by `Not yet!`

C. One line of code does not compile.

D. Two lines of code do not compile.

E. Three lines of code do not compile.

F. The code compiles but prints an exception at runtime.

2. Which statements about the following class are correct? (Choose two.)

```
package knowledge;
class InformationException extends Exception {}
public class LackOfInformationException
      extends InformationException {
  public LackOfInformationException() {             // t1
      super("");
   }
   public LackOfInformationException(String s) {     // t2
      this(new Exception(s));
   }
   public LackOfInformationException(Exception c) {  // t3
      super();
   }
```

```
   @Override public String getMessage() {
      return "lackOf";
   }
}
```

A. `LackOfInformationException` compiles without issue.
B. The constructor declared at line `t1` does not compile.
C. The constructor declared at line `t2` does not compile.
D. The constructor declared at line `t3` does not compile.
E. The `getMessage()` method does not compile because of the `@Override` annotation.
F. `LackOfInformationException` is a checked exception.

3. Assuming the following class is concurrently accessed by numerous threads, which statement about the `CountSheep` class is correct?

```
package fence;
import java.util.concurrent.atomic.*;
public class CountSheep {
   private static AtomicInteger counter = new AtomicInteger();
   private Object lock = new Object();
   public synchronized int increment1() {
      return counter.incrementAndGet();
   }
   public static synchronized int increment2() {
      return counter.getAndIncrement();
   }
   public int increment3() {
      synchronized(lock) {
         return counter.getAndIncrement();
      } } }
```

A. The class is thread-safe only if `increment1()` is removed.
B. The class is thread-safe only if `increment2()` is removed.
C. The class is thread-safe only if `increment3()` is removed.
D. The class is already thread-safe.
E. The class does not compile.
F. The class compiles but may throw an exception at runtime.

4. Which statements best describe the result of executing this code? (Choose two.)

```
package nyc;
public class TouristBus {
```

```
   public static void main(String... args) {
      var nycTourLoops = new String[] {
         "Downtown", "Uptown", "Brooklyn" };
      var times = new String[] { "Day", "Night" };

         for (int i = 0, j = 0;
               i < nycTourLoops.length; i++, j++)

            System.out.println(
               nycTourLoops[i] + " " + times[j]);
   }
}
```

A. The `println()` causes one line of output.

B. The `println()` causes two lines of output.

C. The `println()` causes three lines of output.

D. The code terminates successfully.

E. The code throws an exception at runtime.

5. What is the output of the following application?

```
package woods;
interface Plant {
   default String grow() { return "Grow!"; }
}
interface Living {
   public default String grow() { return "Super Growing!"; }
}
public class Tree implements Plant, Living {  // m1
   public String grow() { return super.Plant.grow(); }
   public static void main(String[] leaves) {
      Plant p = new Tree();                    // m2
      System.out.print(((Living)p).grow());   // m3
   }
}
```

A. `Grow!`

B. `Super Growing!`

C. It does not compile because of line `m1`.

D. It does not compile because of line `m2`.

E. It does not compile because of line `m3`.

F. None of the above.

6. Which statements about the following application are true? (Choose two.)

```
package party;
import java.util.concurrent.*;
public class Plan {
   ExecutorService s = Executors.newScheduledThreadPool(10);
   public void planEvents() {
      Runnable r1 = () -> System.out.print("Check food");
      Runnable r2 = () -> System.out.print("Check drinks");
      Runnable r3 = () -> System.out.print("Take out trash");
      s.scheduleWithFixedDelay(r1,1,TimeUnit.HOURS);      // g1
      s.scheduleAtFixedRate(r2,1,1000,TimeUnit.SECONDS);  // g2
      s.execute(r3);                                      // g3
      s.shutdownNow();
   } }
```

A. Line g1 does not compile.
B. Line g2 does not compile.
C. Line g3 does not compile.
D. All of the lines of code compile.
E. The code hangs indefinitely at runtime.
F. The code throws an exception at runtime.

7. Which of the following is a valid method name in Java? (Choose two.)

A. `_____`
B. `%run`
C. `check-Activity`
D. `$Hum2`
E. `sing\\3`
F. `po#ut`

8. Which two options when inserted independently can fill in the blank to compile the code? (Choose two.)

```
javac _____ mods -d birds com-bird/*.java *.java
```

A. `-cp`
B. `-m`
C. `-p`
D. `-classpath`
E. `--classpath`
F. `--module-path`

9. Which classes when inserted into the blank do not allow this code to compile? (Choose two.)

```
import java.io.*;
class Music {
   void make() throws IOException {
      throw new UnsupportedOperationException();
   }
}
public class Sing extends Music {
   public void make() throws _____________ {
      System.out.println("do-re-mi-fa-so-la-ti-do");
   }
}
```

A. `FileNotFoundException`
B. `NumberFormatException`
C. `Exception`
D. `Error`
E. `Throwable`
F. `RuntimeException`

10. What is the result of compiling and executing the following application?

```
package reptile;
public class Alligator {
   static int teeth;
   double scaleToughness;
   public Alligator() {
      this.teeth++;
   }
   public void snap(int teeth) {
      System.out.print(teeth+" ");
      teeth--;
   }
   public static void main(String[] unused) {
      new Alligator().snap(teeth);
      new Alligator().snap(teeth);
   }
}
```

A. `0 1`
B. `1 1`
C. `1 2`
D. `2 2`

E. The code does not compile.

F. The code compiles but produces an exception at runtime.

11. Which are true statements about the majority of steps in migrating to a modular application? (Choose two.)

A. In a bottom-up migration, automatic modules turn into named modules.

B. In a bottom-up migration, named modules turn into automatic modules.

C. In a bottom-up migration, unnamed modules turn into named modules.

D. In a top-down migration, automatic modules turn into named modules.

E. In a top-down migration, named modules turn into automatic modules.

F. In a top-down migration, unnamed modules turn into named modules.

12. Which of the following are true about Java operators and statements? (Choose three.)

A. Both right-hand sides of the ternary expression are evaluated at runtime.

B. A `switch` statement may contain at most one `default` statement.

C. The post-increment operator (`++`) returns the value of the variable before the addition is applied.

D. The logical operators (`|`) and (`||`) are interchangeable, producing the same results at runtime.

E. The complement operator (`!`) operator may be applied to numeric expressions.

F. An assignment operator returns a value that is equal to the value of the expression being assigned.

13. Assume the file system is accessible, `/flower/rose.txt` exists, and the other two directories `/garden` and `/nursery` do not exist. What is the expected result after executing the following code snippet?

```
Files.createDirectories(Path.of("/garden"));
Files.createDirectory(Path.of("/nursery"));

Files.move(Path.of("/flower/rose.txt"),
   Paths.get("/garden"), StandardCopyOption.REPLACE_EXISTING);
Files.move(new File("/garden/rose.txt").toPath(),
   Paths.get("/nursery"), StandardCopyOption.ATOMIC_MOVE);
```

A. There is a file at `/nursery/rose.txt`

B. There is a file at `/flower/rose.txt`

C. The code does not compile.

D. The first `move()` statement throws an exception.

E. The second `move()` statement throws an exception.

F. None of the above.

14. Which of the following are valid functional interfaces? (Choose two.)

A.

```
interface CanClimb {
   default void climb() {}
   static void climb(int x) {}
}
```

B.

```
interface CanDance {
   int dance() { return 5; }
}
```

C.

```
interface CanFly {
   abstract void fly();
}
```

D.

```
interface CanRun {
   void run();
   static double runFaster() {return 2.0; }
}
```

E.

```
interface CanSwim {
   abstract Long swim();
   boolean test();
}
```

15. Suppose we have a `peacocks` table with two columns: `name` and `rating`. What does the following code output if the table is empty?

```
10: var url = "jdbc:derby:birds";
11: var sql = "SELECT name FROM peacocks WHERE name = ?";
12: try (var conn = DriverManager.getConnection(url);
13:     var stmt = conn.prepareStatement(sql)) {
14:
15:     stmt.setString(1, "Feathers");
16:
17:     try (var rs = stmt.execute()) {
18:        System.out.println(rs.next());
19:     }
20: }
```

A. `false`

B. `true`

C. The code does not compile due to lines 12–13.

D. The code does not compile due to lines 17–18.

E. The code does not compile due to another line.

F. The code throws an exception at runtime.

16. Which of the following are valid in a Java file, listed in the order in which they are declared? (Choose two.)

A. A package-private class declaration and a `public` interface declaration

B. Two `package` statements, an `import` statement, and a `public` interface declaration

C. A `package` statement, 128 `import` statements, and two `public` class declarations

D. 16 `import` statements, a `package` statement, and a `public` class declaration

E. 5 `import` statements and 7 package-private interface declarations

F. A `private` interface

17. Which of the following sequences can fill in the blanks so the code prints `-1 0 2`?

```
char[][] letters = new char[][] {
   new char[] { 'a', 'e', 'i', 'o', 'u'},
   new char[] { 'a', 'e', 'o', 'u'} };

var x = Arrays._________(letters[0], letters[0]);
var y = Arrays._________(letters[0], letters[0]);
var z = Arrays._________(letters[0], letters[1]);

System.out.print(x + " " + y + " " + z);
```

A. `compare`, `mismatch`, `compare`

B. `compare`, `mismatch`, `mismatch`

C. `mismatch`, `compare`, `compare`

D. `mismatch`, `compare`, `mismatch`

E. None of the above

18. What does the following output?

```
var dice = new LinkedList<Integer>();
dice.offer(3);
dice.offer(2);
dice.offer(4);
System.out.print(dice.stream().filter(n -> n != 4));
```

A. `2`

B. `3`

C. `[3 2]`

D. The code does not compile.

E. None of the above.

19. What is the output of executing the following code snippet?

```
var e = Executors.newSingleThreadExecutor();
Runnable r1 = () -> Stream.of(1,2,3).parallel();
Callable r2 = () -> Stream.of(4,5,6).parallel();

Future<Stream<Integer>> f1 = e.submit(r1);  // x1
Future<Stream<Integer>> f2 = e.submit(r2);  // x2

var r = Stream.of(f1.get(),f2.get())
   .flatMap(p -> p)                         // x3
   .parallelStream()                        // x4
   .collect(
      Collectors.groupingByConcurrent(i -> i%2==0));
System.out.print(r.get(false).size()
   +" "+r.get(true).size());
```

A. `3 3`

B. `2 4`

C. One of the marked lines (`x1`, `x2`, `x3`, `x4`) does not compile.

D. Two of the marked lines (`x1`, `x2`, `x3`, `x4`) do not compile.

E. Three of the marked lines (`x1`, `x2`, `x3`, `x4`) do not compile.

F. None of the above.

20. Which statements about the following class that loads a library on startup are correct? (Choose three.)

```
import java.io.FilePermission;
import java.security.*;
import java.util.List;

public class Startup {
   private static final List<String> files =
      List.of("my.secret","other.secrets");
   public void startup(String f) {
      var perm = new FilePermission(f,"write"); // j1
      AccessController.checkPermission(perm);   // j2
      AccessController.doPrivileged(
    new PrivilegedAction<Void>() {
        public Void run() {
           if(files.contains(f))
              System.loadLibrary(f);           // j3
```

```
            return null;
         }
      });
   } }
```

A. Line `j1` contains a security error or risk.

B. Line `j2` contains a security error or risk.

C. Line `j3` contains a security error or risk.

D. Line `j1` does not contain a security error or risk.

E. Line `j2` does not contain a security error or risk.

F. Line `j3` does not contain a security error or risk.

21. How many times does this code print `[2, 7, 8]`?

```
1:  import java.util.*;
2:  import java.util.stream.*;
3:
4:  public class RemoveMe<T> {
5:     private List<T> values;
6:     public RemoveMe(T... values) {
7:        this.values = Arrays.stream(values)
8:           .collect(Collectors.toList());
9:     }
10:    public void remove(T value) {
11:       values.remove(value);
12:    }
13:    public static void main(String[] args) {
14:       var integer = new RemoveMe<Integer>(2, 7, 1, 8);
15:       var longs = new RemoveMe<Long>(2L, 7L, 1L, 8L);
16:       integer.remove(1);
17:       longs.remove(1L);
18:
19:       System.out.println(integer.values);
20:       System.out.println(longs.values);
21:
22:       var values = new ArrayList<Integer>();
23:       values.add(2);
24:       values.add(7);
25:       values.add(1);
26:       values.add(8);
27:       values.remove(1);
```

```
28:       System.out.println(values);
29:    }
30: }
```

A. Zero.

B. One.

C. Two.

D. Three.

E. The code does not compile.

F. The code compiles but throws an exception.

22. Fill in the blanks with the proper method names to deserialize an object. (Choose two.)

```
import java.io.*;
public class BoxOfSecrets {
   private void __________(ObjectInputStream in)
         throws IOException {
      // IMPLEMENTATION OMITTED
   }

   public Object __________() throws ObjectStreamException  {
      // IMPLEMENTATION OMITTED
   }
}
```

A. `writeObject` in the first blank

B. `writeResolve` in the first blank

C. `readObject` in the first blank

D. `writeReplace` in the second blank

E. `readResolve` in the second blank

F. `readReplace` in the second blank

23. How many lines of the following application do not compile?

```
1:  package castles;
2:  import java.io.*;
3:  public class Palace {
4:     public void openDrawbridge() throws Exception {
5:        try {
6:           throw new Exception("Problem");
7:        } catch (IOException e) {
8:           throw new IOException();
```

```
9:         } catch (FileNotFoundException e) {
10:           try {
11:              throw new IOException();
12:           } catch (Exception e) {
13:           } finally {
14:              System.out.println("Almost done");
15:           }
16:        } finally {
17:           throw new RuntimeException("Unending problem");
18:        }
19:     }
20:
21:     public static void main(String[] moat)
22:           throws IllegalArgumentException {
23:        new Palace().openDrawbridge();
24:     }
25: }
```

A. None. The code compiles and produces a stack trace at runtime.

B. One.

C. Two.

D. Three.

E. Four.

F. Five.

24. Which of the following is true of the following module declaration?

```
1: module com.mammal {
2:    exports com.mammal.cat;
3:    exports com.mammal.mouse to com.mice;
4:    uses com.animal;
5: }
```

A. The first line that fails to compile is line 1.

B. The first line that fails to compile is line 2.

C. The first line that fails to compile is line 3.

D. The first line that fails to compile is line 4.

E. The code compiles.

25. What is the result of the following?

```
import java.util.*;
public class Museums {
```

```
   public static void main(String[] args) {
      String[] array = {"Natural History", "Science", "Art"};
      List<String> museums = Arrays.asList(array);
      museums.remove(2);
      System.out.println(museums);
   }
}
```

A. `[Natural History, Science]`

B. `[Natural History, Science, Art]`

C. The code does not compile.

D. The code compiles but throws an exception at runtime.

26. Which commands can include the following output? (Choose two.)

```
JDK Internal API   Suggested Replacement
sun.misc.Unsafe    See http://openjdk.java.net/jeps/260
```

A. `jdeps sneaky.jar`

B. `jdeps -j sneaky.jar`

C. `jdeps -s sneaky.jar`

D. `jdeps --internals sneaky.jar`

E. `jdeps -jdkinternals sneaky.jar`

F. `jdeps --jdk-internals sneaky.jar`

27. What is the output of the following?

```
public class Legos {
   public static void main(String[] args) {
      var ok = true;
      if (ok) {
         StringBuilder sb = new StringBuilder();
         sb.append("red");
         sb.deleteCharAt(0);
         sb.delete(1, 1);
      }
      System.out.println(sb);
   }
}
```

A. `r`

B. `e`

C. `ed`

D. `red`

E. The code does not compile.

F. The code compiles but throws an exception at runtime.

28. What is the output of the following when run as `java EchoFirst.java seed flower plant`?

```
import java.util.*;

public class EchoFirst {
   public static void main(String[] args) {
      Arrays.sort(args);
      var result = Arrays.binarySearch(args, args[0]);
      System.out.println(result);
   }
}
```

A. `0`

B. `1`

C. `2`

D. The code does not compile.

E. The code compiles but throws an exception at runtime.

F. The output is not guaranteed.

29. How many lines of the following declaration contain a compiler error?

```
1: import java.lang.annotation.*;
2: @Inherited
3: public @interface Panic {
4:    public abstract alert() default 10;
5:    public final static int alarm_volume = 10;
6:    String[] type() default {"test"};
7:    Long range();
8:    abstract boolean silent();
9: }
```

A. None.

B. One.

C. Two.

D. Three.

E. Four.

F. Five.

30. What is the output of the method that `main()` calls?

```
public class Hippo {
   private static void hippo(short num1, short num2) {
      System.out.println("shorts");
   }
   private static void hippo(int... nums) {
      System.out.println("varargs");
   }
   private void hippo(long num1, long num2) {
      System.out.println("longs");
   }
   private void hippo(int num1, int num2) {
      System.out.println("nums");
   }
   public static void main(String... args) {
      hippo(1, 5);
   }
}
```

A. `longs`

B. `nums`

C. `shorts`

D. `varargs`

E. The code does not compile.

31. Suppose you have a consumer that calls the `lion()` method within a `Lion` service. You have four distinct modules: consumer, service locator, service provider, and service provider interface. If you add a parameter to the `lion()` method, how many of the modules require recompilation?

A. Zero.

B. One.

C. Two.

D. Three.

E. Four.

32. Which annotations will trigger a compiler error if incorrectly applied to a method with no other annotations? (Choose three.)

A. `@Documented`

B. `@Deprecated`

C. `@SuppressWarnings("unchecked")`

D. `@Override`

E. `@SuppressWarnings("magic")`

F. `@SafeVarargs`

33. Which of the following cannot be instantiated directly by the caller using the constructor? (Choose two.)

A. `Locale`

B. `ResourceBundle`

C. `Locale.Builder`

D. `Properties`

E. `DateTimeFormatter`

F. `HashMap`

34. Which lines fail to compile?

```
package armory;
import java.util.function.*;

interface Shield {
   void protect();
}
class Dragon {
   int addDragon(Integer count) {
     return ++count;
   }
}

public class Sword {
   public static void main(String[] knight) {
      var dragon = new Dragon();
      Function<Shield, Sword> func = Shield::protect; // line x
      UnaryOperator<Integer> op = dragon::addDragon;  // line y
   }
}
```

A. Only line `x`

B. Only line `y`

C. Both lines `x` and `y`

D. The code compiles.

35. Fill in the blanks: The operators `+=`, _____, _____, _____, _____, and `--` are listed in increasing or the same level of operator precedence. (Choose two.)

A. `^`, `*`, `=`, `++`

B. `%`, `*`, `/`, `&&`

C. `=`, `+`, `/`, `*`

D. `^`, `*`, `==`, `++`

E. `*, /, %, ++`

F. `<=, >=, !=, !`

36. What is the result of the following?

```
1: import java.util.function.*;
2: public class Ready {
3:     private static double getNumber() {
4:        return .007;
5:     }
6:     public static void main(String[] args) {
7:        Supplier<double> s = Ready::getNumber;
8:        double d = s.get();
9:        System.out.println(d);
10:    }
11: }
```

A. `0`

B. `0.007`

C. The code does not compile due to line 7.

D. The code does not compile due to line 8.

E. The code does not compile for another reason.

37. What is the result of the following?

```
import java.util.stream.*;

public class StreamOfStreams {

   public static void main(String[] args) {
     var result =
        Stream.of(getNums(9, 8), getNums(22, 33))  // c1
           .flatMap(x -> x)                        // c2
           .map((a, b) -> a - b)                   // c3
           .filter(x -> !x.isEmpty())              // c4
           .get();
     System.out.println(result);
   }
   private static Stream<Integer> getNums(int num1, int num2) {
      return Stream.of(num1, num2);
   }
}
```

A. The code compiles and outputs `1`.

B. The code compiles and outputs `8`.

C. The first compiler error is on line `c1`.

D. The first compiler error is on line `c2`.

E. The first compiler error is on line `c3`.

F. The first compiler error is on line `c4`.

38. Given that `FileNotFoundException` is a subclass of `IOException` and `Long` is a subclass of `Number`, what is the output of the following application?

```
package materials;

import java.io.*;

class CarbonStructure {
    protected long count;
    public abstract Number getCount() throws IOException; // q1
    public CarbonStructure(int count) { this.count = count; }
}
public class Diamond extends CarbonStructure {
   public Diamond() { super(15); }
   public Long getCount() throws FileNotFoundException { // q2
      return count;
   }
   public static void main(String[] cost) {
      try {
         final CarbonStructure ring = new Diamond(); // q3
         System.out.print(ring.getCount()); // q4
      } catch (IOException e) {
                e.printStackTrace();
      }
   }
}
```

A. `15`

B. It does not compile because of line `q1`.

C. It does not compile because of line `q2`.

D. It does not compile because of line `q3`.

E. It does not compile because of line `q4`.

F. The class compiles but produces an exception at runtime.

39. Which of the following statements about `InputStream` and `Reader` are correct? (Choose two.)

- **A.** They are both `abstract` classes.
- **B.** They can both be used to read character data.
- **C.** One contains a `read()` method that returns a `byte` value, while the other contains a `read()` method that returns a `char` value.
- **D.** They are both interfaces.
- **E.** Only one of them contains a `flush()` method.
- **F.** Only one of them contains a `skip()` method.

40. Which are true statements about interfaces and abstract classes? (Choose three.)

- **A.** Abstract classes offer support for single inheritance, while interfaces offer support for multiple inheritance.
- **B.** All methods in abstract classes are `public`, while interfaces can use various access modifiers for their methods and variables, including `private` in some cases.
- **C.** Both abstract classes and interfaces can have `abstract` methods.
- **D.** Both abstract classes and interfaces can have `public` constructors.
- **E.** Interfaces can only extend other interfaces, while abstract classes can extend both abstract and concrete classes.
- **F.** Unlike abstract classes, interfaces can be marked `final`.

41. What is the output of the following?

```
var builder = new StringBuilder("Leaves growing");
do {
   builder.delete(0, 5);
} while (builder.length() > 5);
System.out.println(builder);
```

- **A.** `Leaves growing`
- **B.** `ing`
- **C.** `wing`
- **D.** The code does not compile.
- **E.** The code compiles but throws an exception at runtime.

42. Which of the following statements about nested classes are correct? (Choose three.)

- **A.** An anonymous class can declare that it implements multiple interfaces.
- **B.** All nested classes can contain constant variables.
- **C.** A local class can declare that it implements multiple interfaces.
- **D.** A member inner class can contain `static` methods.
- **E.** A `static` nested class can contain `static` methods.
- **F.** A local class can access all local variables prior to its declaration within a method.

43. Starting with `DoubleBinaryOperator` and going downward, fill in the values for the table.

Functional Interface	# Parameters in Method Signature
`DoubleBinaryOperator`	
`LongToIntFunction`	
`ToLongBiFunction`	
`IntSupplier`	
`ObjLongConsumer`	

A. `1, 0, 0, 0, 2`

B. `1, 2, 1, 0, 1`

C. `2, 1, 0, 1, 2`

D. `2, 1, 1, 0, 1`

E. `2, 1, 2, 0, 2`

F. `3, 0, 2, 1, 1`

44. Which of the following methods can run without error for at least one SQL query?

```
private static void choices(PreparedStatement ps,
   String sql) throws SQLException {

   try (var rs = ps.executeQuery()) {
      System.out.println(rs.getInt(1));
    }
}
private static void moreChoices(PreparedStatement ps,
   String sql) throws SQLException {

   try (var rs = ps.executeQuery()) {
      rs.next();
      System.out.println(rs.getInt(1));
   }
}
private static void stillMoreChoices(PreparedStatement ps,
   String sql) throws SQLException {

   try (var rs = ps.executeQuery()) {
      if (rs.next())
         System.out.println(rs.getInt(1));
```

```
      }
   }
}
```

A. `moreChoices()`

B. `stillMoreChoices()`

C. `choices()` and `stillMoreChoices()`

D. `moreChoices()` and `stillMoreChoices()`

E. All three methods

F. None of the above

45. What is true of the following method?

```
public void printColor() {
   System.out.println(color);
}
```

A. It is a correctly implemented accessor method.

B. It is a correctly implemented mutator method.

C. It is an incorrectly implemented accessor method.

D. It is an incorrectly implemented mutator method.

E. None of the above.

46. What can fill in the blank so the `play()` method can be called from all classes in the `com.mammal.eland` package, but not the `com.mammal.gopher` package?

```
package com.mammal;

public class Enrichment {
   ____  void play() {}
}
```

A. Leave it blank

B. `private`

C. `protected`

D. `public`

E. None of the above

47. Which of the following statements about performing a concurrent reduction are correct? (Choose two.)

A. If a collector is used, it must have the unordered characteristic.

B. The stream must operate on thread-safe collections.

C. If the `reduce()` method is used with a lambda expression, then it should be stateful.

D. The stream must inherit `ParallelStream<T>`.

E. The stream must be parallel.

F. If a collector is used, it must have the concurrent characteristic.

48. Which of the following statements about `java.lang.Error` are most accurate? (Choose two.)

A. An `Error` should be thrown if a file system resource becomes temporarily unavailable.

B. An application should never catch an `Error`.

C. `Error` is a subclass of `Exception`, making it a checked exception.

D. It is possible to catch and handle an `Error` thrown in an application.

E. An `Error` should be thrown if a user enters invalid input.

F. `Error` is a subclass of `RuntimeException`, making it an unchecked exception.

49. Given the following classes, what is the output of the `Watch` program?

```
1:  class SmartWatch extends Watch {
2:     private String getType() { return "smart watch"; }
3:     public String getName() {
4:        return getType() + ",";
5:     }
6:  }
7:  public class Watch {
8:     private String getType() { return "watch"; }
9:     public String getName(String suffix) {
10:       return getType() + suffix;
11:    }
12:    public static void main(String[] args) {
13:       Watch watch = new Watch();
14:       Watch smartWatch = new SmartWatch();
15:       System.out.print(watch.getName(","));
16:       System.out.print(smartWatch.getName(""));
17:    }
18: }
```

A. `smart watch,smart watch`

B. `smart watch,watch`

C. `watch,smart watch`

D. `watch,watch`

E. The code does not compile.

F. None of the above.

50. How many of the following lines contain a compiler error?

```
long min1= 123.0, max1 = 987L;
final long min2 = 1_2_3, max2 = 9__8__7;
long min3 = 123, int max3 = 987;
long min4 = 123L, max4 = 987;
long min5 = 123_, max5 = _987;
```

A. Zero

B. One

C. Two

D. Three

E. Four

F. Five