Review Questions

1. Which of the following can fill in the blank in this code to make it compile? (Choose all that apply)

```
public class Ant {
  _____ void method() { }
}
```

   A. `default`
   B. `final`
   C. `private`
   D. `Public`
   E. `String`
   F. `zzz:`

2. Which of the following compile? (Choose all that apply)
   A. `final static void method4() { }`
   B. `public final int void method() { }`
   C. `private void int method() { }`
   D. `static final void method3() { }`
   E. `void final method() {}`
   F. `void public method() { }`

3. Which of the following methods compile? (Choose all that apply)
   A. `public void methodA() {  return;}`
   B. `public void methodB() {  return null;}`
   C. `public void methodD() {}`
   D. `public int methodD() {  return 9;}`
   E. `public int methodE() {  return 9.0;}`
   F. `public int methodF() {  return;}`
   G. `public int methodG() {  return null;}`

4. Which of the following compile? (Choose all that apply)
   A. `public void moreA(int... nums) {}`
   B. `public void moreB(String values, int... nums) {}`
   C. `public void moreC(int... nums, String values) {}`
   D. `public void moreD(String... values, int... nums) {}`
   E. `public void moreE(String[] values, ...int nums) {}`
   F. `public void moreF(String... values, int[] nums) {}`
   G. `public void moreG(String[] values, int[] nums) {}`

5. Given the following method, which of the method calls return 2? (Choose all that apply)

```
public int howMany(boolean b, boolean... b2) {
  return b2.length;
}
```

   A. `howMany();`
   B. `howMany(true);`
   C. `howMany(true, true);`
   D. `howMany(true, true, true);`
   E. `howMany(true, {true});`
   F. `howMany(true, {true, true});`
   G. `howMany(true, new boolean[2]);`

6. Which of the following are true? (Choose all that apply)
   A. Package private access is more lenient than protected access.
   B. A `public` class that has private fields and package private methods is not visible to classes outside the package.
   C. You can use access modifiers so only some of the classes in a package see a particular package private class.
   D. You can use access modifiers to allow read access to all methods, but not any instance variables.
   E. You can use access modifiers to restrict read access to all classes that begin with the word `Test`.

7. Given the following `my.school.ClassRoom` and `my.city.School` class definitions, which line numbers in `main()` generate a compiler error? (Choose all that apply)

```
1: package my.school;
2: public class Classroom {
3:   private int roomNumber;
4:   protected String teacherName;
5:   static int globalKey = 54321;
6:   public int floor = 3;
7:   Classroom(int r, String t) {
8:     roomNumber = r;
9:     teacherName = t; } }

1: package my.city;
2: import my.school.*;
3: public class School {
4:   public static void main(String[] args) {
5:     System.out.println(Classroom.globalKey);
6:     Classroom room = new Classroom(101, ""Mrs. Anderson");
```

```
7:     System.out.println(room.roomNumber);
8:     System.out.println(room.floor);
9:     System.out.println(room.teacherName); } }
```

A. None, the code compiles fine.

B. Line 5

C. Line 6

D. Line 7

E. Line 8

F. Line 9

8. Which of the following are true? (Choose all that apply)

A. Encapsulation uses package private instance variables.

B. Encapsulation uses private instance variables.

C. Encapsulation allows setters.

D. Immutability uses package private instance variables.

E. Immutability uses private instance variables.

F. Immutability allows setters.

9. Which are methods using JavaBeans naming conventions for accessors and mutators? (Choose all that apply)

A. `public boolean getCanSwim() {  return canSwim;}`

B. `public boolean canSwim() {  return numberWings;}`

C. `public int getNumWings() {  return numberWings;}`

D. `public int numWings()    {  return numberWings;}`

E. `public void setCanSwim(boolean b) {  canSwim = b;}`

10. What is the output of the following code?

```
1: package rope;
2: public class Rope {
3:  public static int LENGTH = 5;
4:  static {
5:    LENGTH = 10;
6:  }
```

```
7:  public static void swing() {
8:    System.out.print("swing ");
9:  }
10: }

1: import rope.*;
2: import static rope.Rope.*;
3: public class Chimp {
4:  public static void main(String[] args) {
5:    Rope.swing();
6:    new Rope().swing();
7:    System.out.println(LENGTH);
8:  }
9: }
```

A. `swing swing 5`

B. `swing swing 10`

C. Compiler error on line 2 of `Chimp`.

D. Compiler error on line 5 of `Chimp`.

E. Compiler error on line 6 of `Chimp`.

F. Compiler error on line 7 of `Chimp`.

11. Which are true of the following code? (Choose all that apply)

```
1:  public class Rope {
2:    public static void swing() {
3:      System.out.print("swing ");
4:    }
5:    public void climb() {
6:      System.out.println("climb ");
7:    }
8:    public static void play() {
9:      swing();
10:     climb();
11:   }
12:   public static void main(String[] args) {
13:     Rope rope = new Rope();
14:     rope.play();
15:     Rope rope2 = null;
16:     rope2.play();
17:   }
18: }
```

A. The code compiles as is.

B. There is exactly one compiler error in the code.

C. There are exactly two compiler errors in the code.

D. If the lines with compiler errors are removed, the output is `climb climb`.

E. If the lines with compiler errors are removed, the output is `swing swing`.

F. If the lines with compile errors are removed, the code throws a `NullPointerException`.

12. What is the output of the following code?

```
import rope.*;
import static rope.Rope.*;
public class RopeSwing {
  private static Rope rope1 = new Rope();
  private static Rope rope2 = new Rope();
  {
    System.out.println(rope1.length);
  }
  public static void main(String[] args) {
    rope1.length = 2;
    rope2.length = 8;
    System.out.println(rope1.length);
  }
}

package rope;
public class Rope {
  public static int length = 0;
}
```

A. `02`

B. `08`

C. `2`

D. `8`

E. The code does not compile.

F. An exception is thrown.

13. How many compiler errors are in the following code?

```
1: public class RopeSwing {
2:   private static final String leftRope;
3:   private static final String rightRope;
4:   private static final String bench;
5:   private static final String name = "name";
```

```
6:   static {
7:     leftRope = "left";
8:     rightRope = "right";
9:   }
10:   static {
11:     name = "name";
12:     rightRope = "right";
13:   }
14:   public static void main(String[] args) {
15:     bench = "bench";
16:   }
17: }
```

A. 0

B. 1

C. 2

D. 3

E. 4

F. 5

14. Which of the following can replace line 2 to make this code compile? (Choose all that apply)

```
1: import java.util.*;
2: // INSERT CODE HERE
3: public class Imports {
4:  public void method(ArrayList<String> list) {
5:    sort(list);
6:  }
7: }
```

A. `import static java.util.Collections;`

B. `import static java.util.Collections.*;`

C. `import static java.util.Collections.sort(ArrayList<String>);`

D. `static import java.util.Collections;`

E. `static import java.util.Collections.*;`

F. `static import java.util.Collections.sort(ArrayList<String>);`

15. What is the result of the following statements?

```
1:  public class Test {
2:    public void print(byte x) {
3:      System.out.print("byte");
4:    }
5:    public void print(int x) {
6:      System.out.print("int");
```

```
7:    }
8:    public void print(float x) {
9:      System.out.print("float");
10:   }
11:   public void print(Object x) {
12:     System.out.print("Object");
13:   }
14:   public static void main(String[] args) {
15:     Test t = new Test();
16:     short s = 123;
17:     t.print(s);
18:     t.print(true);
19:     t.print(6.789);
20:   }
21: }
```

A. `bytefloatObject`

B. `intfloatObject`

C. `byteObjectfloat`

D. `intObjectfloat`

E. `intObjectObject`

F. `byteObjectObject`

16. What is the result of the following program?

```
1: public class Squares {
2:   public static long square(int x) {
3:     long y = x * (long) x;
4:     x = -1;
5:     return y;
6:   }
7:   public static void main(String[] args) {
8:     int value = 9;
9:     long result = square(value);
10:     System.out.println(value);
11:   } }
```

A. `-1`

B. `9`

C. `81`

D. Compiler error on line 9.

E. Compiler error on a different line.

17. Which of the following are output by the following code? (Choose all that apply)

```
public class StringBuilders {
  public static StringBuilder work(StringBuilder a,
StringBuilder b) {
    a = new StringBuilder("a");
    b.append("b");
    return a;
  }
  public static void main(String[] args) {
    StringBuilder s1 = new StringBuilder("s1");
    StringBuilder s2 = new StringBuilder("s2");
    StringBuilder s3 = work(s1, s2);
    System.out.println("s1 = " + s1);
    System.out.println("s2 = " + s2);
    System.out.println("s3 = " + s3);
  }
}
```

A. `s1 = a`

B. `s1 = s1`

C. `s2 = s2`

D. `s2 = s2b`

E. `s3 = a`

F. `s3 = null`

G. The code does not compile.

18. Which of the following are true? (Choose 2)

A. `this()` can be called from anywhere in a constructor.

B. `this()` can be called from any instance method in the class.

C. `this.variableName` can be called from any instance method in the class.

D. `this.variableName` can be called from any static method in the class.

E. You must include a default constructor in the code if the compiler does not include one.

F. You can call the default constructor written by the compiler using `this()`.

G. You can access a private constructor with the `main()` method.

19. Which of these classes compile and use a default constructor? (Choose all that apply)

A. `public class Bird { }`

B. `public class Bird { public bird() {} }`

C. `public class Bird { public bird(String name) {} }`

D. `public class Bird { public Bird() {} }`

E. `public class Bird { Bird(String name) {} }`

F. `public class Bird { private Bird(int age) {} }`

G. `public class Bird { void Bird() { } }`

20. Which code can be inserted to have the code print `2`?

```
public class BirdSeed {
  private int numberBags;
  boolean call;

  public BirdSeed() {
    // LINE 1
    call = false;
    // LINE 2
  }
  public BirdSeed(int numberBags) {
    this.numberBags = numberBags;
  }
  public static void main(String[] args) {
    BirdSeed seed = new BirdSeed();
    System.out.println(seed.numberBags);
  } }
```

A. Replace line 1 with `BirdSeed(2);`

B. Replace line 2 with `BirdSeed(2);`

C. Replace line 1 with `new BirdSeed(2);`

D. Replace line 2 with `new BirdSeed(2);`

E. Replace line 1 with `this(2);`

F. Replace line 2 with `this(2);`

21. Which of the following complete the constructor so that this code prints out `50`? (Choose all that apply)

```
public class Cheetah {
  int numSpots;
  public Cheetah(int numSpots) {
    // INSERT CODE HERE
  }
  public static void main(String[] args) {
    System.out.println(new Cheetah(50).numSpots);
  }
}
```

A. `numSpots = numSpots;`

B. `numSpots = this.numSpots;`

C. `this.numSpots = numSpots;`

D. `numSpots = super.numSpots;`

E. `super.numSpots = numSpots;`

F. None of the above.

22. What is the result of the following?

```
1:  public class Order {
2:    static String result = "";
3:    { result += "c"; }
4:    static
5:    { result += "u"; }
6:    { result += "r"; }
7: }

1: public class OrderDriver {
2:   public static void main(String[] args) {
3:     System.out.print(Order.result + " ");
4:     System.out.print(Order.result + " ");
5:     new Order();
6:     new Order();
7:     System.out.print(Order.result + " ");
8:   }
9: }
```

A. `curur`

B. `ucrcr`

C. `u ucrcr`

D. `u u curcur`

E. `u u ucrcr`

F. `ur ur urc`

G. The code does not compile.

23. What is the result of the following?

```
1: public class Order {
2:   String value = "t";
3:   { value += "a"; }
4:   { value += "c"; }
5:   public Order() {
```

```
6:     value += "b";
7:   }
8:   public Order(String s) {
9:     value += s;
10:  }
11:  public static void main(String[] args) {
12:    Order order = new Order("f");
13:    order = new Order();
14:    System.out.println(order.value);
15:  } }
```

A. tacb

B. tacf

C. tacbf

D. tacfb

E. tacftacb

F. The code does not compile.

G. An exception is thrown.

24. Which of the following will compile when inserted in the following code? (Choose all that apply)

```
public class Order3 {
  final String value1 = "1";
  static String value2 = "2";
  String value3 = "3";
  {
    // CODE SNIPPET 1
  }
  static {
    // CODE SNIPPET 2
  }
}
```

A. `value1 = "d";` instead of `// CODE SNIPPET 1`

B. `value2 = "e";` instead of `// CODE SNIPPET 1`

C. `value3 = "f";` instead of `// CODE SNIPPET 1`

D. `value1 = "g";` instead of `// CODE SNIPPET 2`

E. `value2 = "h";` instead of `// CODE SNIPPET 2`

F. `value3 = "i";` instead of `// CODE SNIPPET 2`

25. Which of the following are true about the following code? (Choose all that apply)

```
public class Create {
  Create() {
    System.out.print("1 ");
  }
  Create(int num) {
    System.out.print("2 ");
  }
  Create(Integer num) {
    System.out.print("3 ");
  }
  Create(Object num) {
    System.out.print("4 ");
  }
  Create(int... nums) {
    System.out.print("5 ");
  }
  public static void main(String[] args) {
    new Create(100);
    new Create(1000L);
  }
}
```

A. The code prints out `2 4`.

B. The code prints out `3 4`.

C. The code prints out `4 2`.

D. The code prints out `4 4`.

E. The code prints `3 4` if you remove the constructor `Create(int num)`.

F. The code prints `4 4` if you remove the constructor `Create(int num)`.

G. The code prints `5 4` if you remove the constructor `Create(int num)`.

26. What is the result of the following class?

```
1: import java.util.function.*;
2:
3: public class Panda {
4:   int age;
5:   public static void main(String[] args) {
6:     Panda p1 = new Panda();
7:     p1.age = 1;
8:     check(p1, p -> p.age < 5);
```

```
9:   }
10:   private static void check(Panda panda, Predicate<Panda> pred) {
11:     String result = pred.test(panda) ? "match" : "not match";
12:     System.out.print(result);
13: } }
```

A. `match`

B. `not match`

C. Compiler error on line 8.

D. Compiler error on line 10.

E. Compiler error on line 11.

F. A runtime exception is thrown.

27. What is the result of the following code?

```
1: interface Climb {
2:   boolean isTooHigh(int height, int limit);
3: }
4:
5: public class Climber {
6:   public static void main(String[] args) {
7:   check((h, l) -> h.append(l).isEmpty(), 5);
8:   }
9:   private static void check(Climb climb, int height) {
10:    if (climb.isTooHigh(height, 10))
11:      System.out.println("too high");
12:    else
13:      System.out.println("ok");
14:  }
15: }
```

A. `ok`

B. `too high`

C. Compiler error on line 7.

D. Compiler error on line 10.

E. Compiler error on a different line.

F. A runtime exception is thrown.

28. Which of the following lambda expressions can fill in the blank? (Choose all that apply)

```
List<String> list = new ArrayList<>();
list.removeIf(____________________);
```

A. `s -> s.isEmpty()`

B. `s -> {s.isEmpty()}`

C. `s -> {s.isEmpty();}`

D. `s -> {return s.isEmpty();}`

E. `String s -> s.isEmpty()`

F. `(String s) -> s.isEmpty()`

29. Which lambda can replace the `MySecret` class to return the same value? (Choose all that apply)

```
interface Secret {
  String magic(double d);
}

class MySecret implements Secret {
  public String magic(double d) {
    return "Poof";
  }
}
```

A. `caller((e) -> "Poof");`

B. `caller((e) -> {"Poof"});`

C. `caller((e) -> { String e = ""; "Poof" });`

D. `caller((e) -> { String e = ""; return "Poof"; });`

E. `caller((e) -> { String e = ""; return "Poof" });`

F. `caller((e) -> { String f = ""; return "Poof"; });`