



Sun Certified Programmer for the  
Java 2 Platform.SE 6.0  
Exam: 310-065

*Edition: 3.0*

9M-G0F0ZIQMH CMHKOFH

**QUESTION: 1**

Given:

1. public class Threads2 implements Runnable {
- 2.
3. public void run() {
4. System.out.println("run.");
5. throw new RuntimeException("Problem");
6. }
7. public static void main(String[] args) {
8. Thread t = new Thread(new Threads2());
9. t.start();
10. System.out.println("End of method.");
11. }
12. }

Which two can be results? (Choose two.)

- A. java.lang.RuntimeException: Problem
- B. run.
- java.lang.RuntimeException: Problem
- C. End of method.
- java.lang.RuntimeException: Problem
- D. End of method.
- run.
- java.lang.RuntimeException: Problem
- E. run.
- java.lang.RuntimeException: Problem
- End of method.

**Answer:** D, E

**QUESTION: 2**

Which two statements are true? (Choose two.)

- A. It is possible for more than two threads to deadlock at once.
- B. The JVM implementation guarantees that multiple threads cannot enter into a deadlocked state.
- C. Deadlocked threads release once their sleep() method's sleep duration has expired.
- D. Deadlocking can occur only when the wait(), notify(), and notifyAll() methods are used incorrectly.
- E. It is possible for a single-threaded application to deadlock if synchronized blocks are used incorrectly.
- F. If a piece of code is capable of deadlocking, you cannot eliminate the possibility of deadlocking by inserting invocations of Thread.yield().

**Answer:** A, F

**QUESTION: 3**

Given:

```
7. void waitForSignal() {
8. Object obj = new Object();
9. synchronized (Thread.currentThread()) {
10. obj.wait();
11. obj.notify();
12. }
13. }
```

Which statement is true?

- A. This code can throw an InterruptedException.
- B. This code can throw an IllegalMonitorStateException.
- C. This code can throw a TimeoutException after ten minutes.
- D. Reversing the order of obj.wait() and obj.notify() might cause this method to complete normally.
- E. A call to notify() or notifyAll() from another thread might cause this method to complete normally.
- F. This code does NOT compile unless "obj.wait()" is replaced with "((Thread) obj).wait()".

**Answer:** B

**QUESTION: 4**

Click the Exhibit button.

What is the output if the main() method is run?

Given:

```
10. public class Starter extends Thread {
11.     private int x = 2;
12.     public static void main(String[] args)
throws Exception {
13.         new Starter().makeItSo();
14.     }
15.     public Starter() {
16.         x = 5;
17.         start();
18.     }
19.     public void makeItSo() throws
Exception {
20.         join();
21.         x = x - 1;
22.         System.out.println(x);
23.     }
24.     public void run() { x *= 2; }
25. }
```

- A. 4
- B. 5
- C. 8

- D. 9
- E. Compilation fails.
- F. An exception is thrown at runtime.
- G. It is impossible to determine for certain.

**Answer:** D

**QUESTION: 5**

Given:

```

11. class PingPong2 {
12.     synchronized void hit(long n) {
13.         for(int i = 1; i < 3; i++)
14.             System.out.print(n + "-" + i + " ");
15.     }
16. }
17. public class Tester implements Runnable {
18.     static PingPong2 pp2 = new PingPong2();
19.     public static void main(String[] args) {
20.         new Thread(new Tester()).start();
21.         new Thread(new Tester()).start();
22.     }
23.     public void run() { pp2.hit(Thread.currentThread().getId()); }
24. }

```

Which statement is true?

- A. The output could be 5-1 6-1 6-2 5-2
- B. The output could be 6-1 6-2 5-1 5-2
- C. The output could be 6-1 5-2 6-2 5-1
- D. The output could be 6-1 6-2 5-1 7-1

**Answer:** B

**QUESTION: 6**

Given:

```

1. public class Threads4 {
2.     public static void main (String[] args) {
3.         new Threads4().go();
4.     }
5.     public void go() {
6.         Runnable r = new Runnable() {
7.             public void run() {
8.                 System.out.print("foo");
9.             }

```

```

10. };
11. Thread t = new Thread(r);
12. t.start();
13. t.start();
14. }
15. }

```

What is the result?

- A. Compilation fails.
- B. An exception is thrown at runtime.
- C. The code executes normally and prints "foo".
- D. The code executes normally, but nothing is printed.

**Answer: B**

**QUESTION: 7**

Given:

```

11. public abstract class Shape {
12. private int x;
13. private int y;
14. public abstract void draw();
15. public void setAnchor(int x, int y) {
16. this.x = x;
17. this.y = y;
18. }
19. }

```

Which two classes use the Shape class correctly? (Choose two.)

- A. public class Circle implements Shape {  
private int radius;  
}
- B. public abstract class Circle extends Shape {  
private int radius;  
}
- C. public class Circle extends Shape {  
private int radius;  
public void draw();  
}
- D. public abstract class Circle implements Shape {  
private int radius;  
public void draw();  
}
- E. public class Circle extends Shape {  
private int radius;

```
public void draw() { /* code here */
F. public abstract class Circle implements Shape {
private int radius;
public void draw() { /* code here */ }
```

**Answer:** B,E

**QUESTION: 8**

Given:

```
11. public class Barn {
12. public static void main(String[] args) {
13. new Barn().go("hi", 1);
14. new Barn().go("hi", "world", 2);
15. }
16. public void go(String... y, int x) {
17. System.out.print(y[y.length - 1] + " ");
18. }
19. }
```

What is the result?

- A. hi hi
- B. hi world
- C. world world
- D. Compilation fails.
- E. An exception is thrown at runtime.

**Answer:** D

**QUESTION: 9**

Given:

```
10. class Nav{
11. public enum Direction { NORTH, SOUTH, EAST, WEST }
12. }
13. public class Sprite{
14. // insert code here
15. }
```

Which code, inserted at line 14, allows the Sprite class to compile?

- A. Direction d = NORTH;
- B. Nav.Direction d = NORTH;
- C. Direction d = Direction.NORTH;
- D. Nav.Direction d = Nav.Direction.NORTH;

**Answer: D**

**QUESTION: 10**

Click the Exhibit button.

Which statement is true about the classes and interfaces in the exhibit?

```

1. public interface A {
2.     public void doSomething(String thing);
3. }

1. public class AImpl implements A {
2.     public void doSomething(String msg) { }
3. }

1. public class B {
2.     public A doit() {
3.         // more code here
4.     }
5.
6.     public String execute() {
7.         // more code here
8.     }
9. }

1. public class C extends B {
2.     public AImpl doit() {
3.         // more code here
4.     }
5.
6.     public Object execute() {
7.         // more code here
8.     }
9. }

```

- A. Compilation will succeed for all classes and interfaces.
- B. Compilation of class C will fail because of an error in line 2.
- C. Compilation of class C will fail because of an error in line 6.
- D. Compilation of class AImpl will fail because of an error in line 2.

**Answer: C**

**QUESTION: 11**

Click the Exhibit button.

What is the result?

```

11. class Person {
12.     String name = "No name";
13.     public Person(String nm) { name = nm; }
14. }
15.
16. class Employee extends Person {
17.     String empID = "0000";
18.     public Employee(String id) { empID =
19.         id; }
20. }
21. public class EmployeeTest {
22.     public static void main(String[] args)
23.     {
24.         Employee e = new Employee("4321");
25.         System.out.println(e.empID);
26.     }

```

- A. 4321
- B. 0000

- C. An exception is thrown at runtime.
- D. Compilation fails because of an error in line 18.

**Answer:** D

**QUESTION: 12**

Given:

```

11. public class Rainbow {
12.     public enum MyColor {
13.         RED(0xff0000), GREEN(0x00ff00), BLUE(0x0000ff);
14.         private final int rgb;
15.         MyColor(int rgb) { this.rgb = rgb; }
16.         public int getRGB() { return rgb; }
17.     };
18.     public static void main(String[] args) {
19.         // insert code here
20.     }
21. }

```

Which code fragment, inserted at line 19, allows the Rainbow class to compile?

- A. MyColor skyColor = BLUE;
- B. MyColor treeColor = MyColor.GREEN;
- C. if(RED.getRGB() < BLUE.getRGB()) { }
- D. Compilation fails due to other error(s) in the code.
- E. MyColor purple = new MyColor(0xff00ff);
- F. MyColor purple = MyColor.BLUE + MyColor.RED;

**Answer:** B

**QUESTION: 13**

Given:

```

11. class Mud {
12.     // insert code here
13.     System.out.println("hi");
14. }
15. }

```

And the following five fragments:

```

public static void main(String...a) {
public static void main(String.* a) {
public static void main(String... a) {
public static void main(String[]... a) {
public static void main(String...[] a) {

```

How many of the code fragments, inserted independently at line 12, compile?



- A. 0
- B. 1
- C. 2
- D. 3
- E. 4
- F. 5

**Answer:** D

**QUESTION:** 14

Given:

```

5. class Atom {
6. Atom() { System.out.print("atom "); }
7. }
8. class Rock extends Atom {
9. Rock(String type) { System.out.print(type); }
10. }
11. public class Mountain extends Rock {
12. Mountain() {
13. super("granite ");
14. new Rock("granite ");
15. }
16. public static void main(String[] a) { new Mountain(); }
17. }

```

What is the result?

- A. Compilation fails.
- B. atom granite
- C. granite granite
- D. atom granite granite
- E. An exception is thrown at runtime.
- F. atom granite atom granite

**Answer:** F

**QUESTION:** 15

Given:

```

1. interface TestA { String toString(); }
2. public class Test {
3. public static void main(String[] args) {
4. System.out.println(new TestA() {
5. public String toString() { return "test"; }

```

```
6. });
7. }
8. }
```

What is the result?

- A. test
- B. null
- C. An exception is thrown at runtime.
- D. Compilation fails because of an error in line 1.
- E. Compilation fails because of an error in line 4.
- F. Compilation fails because of an error in line 5.

**Answer:** A

**QUESTION:** 16

Given:

```
11. public static void parse(String str) {
12. try {
13. float f = Float.parseFloat(str);
14. } catch (NumberFormatException nfe) {
15. f = 0;
16. } finally {
17. System.out.println(f);
18. }
19. }
20. public static void main(String[] args) {
21. parse("invalid");
22. }
```

What is the result?

- A. 0.0
- B. Compilation fails.
- C. A ParseException is thrown by the parse method at runtime.
- D. A NumberFormatException is thrown by the parse method at runtime.

**Answer:** B

**QUESTION:** 17

Given:

```
1. public class Blip {
2. protected int blipvert(int x) { return 0; }
3. }
4. class Vert extends Blip {
```

5. // insert code here  
6. }

Which five methods, inserted independently at line 5, will compile? (Choose five.)

- A. public int blipvert(int x) { return 0; }
- B. private int blipvert(int x) { return 0; }
- C. private int blipvert(long x) { return 0; }
- D. protected long blipvert(int x) { return 0; }
- E. protected int blipvert(long x) { return 0; }
- F. protected long blipvert(long x) { return 0; }
- G. protected long blipvert(int x, int y) { return 0; }

**Answer:** A,C,E,F,G

**QUESTION:** 18

Given:

```
1. class Super {
2. private int a;
3. protected Super(int a) { this.a = a; }
4. }
```

...

```
11. class Sub extends Super {
12. public Sub(int a) { super(a); }
13. public Sub() { this.a = 5; }
14. }
```

Which two, independently, will allow Sub to compile? (Choose two.)

- A. Change line 2 to:  
public int a;
- B. Change line 2 to:  
protected int a;
- C. Change line 13 to:  
public Sub() { this(5); }
- D. Change line 13 to:  
public Sub() { super(5); }
- E. Change line 13 to:  
public Sub() { super(a); }

**Answer:** C,D

**QUESTION:** 19

Which Man class properly represents the relationship "Man has a best friend who is a Dog"?

- A. class Man extends Dog { }
- B. class Man implements Dog { }
- C. class Man { private BestFriend dog; }
- D. class Man { private Dog bestFriend; }
- E. class Man { private Dog<bestFriend>; }
- F. class Man { private BestFriend<dog>; }

**Answer:** D

**QUESTION:** 20

Given:

1. package test;
- 2.
3. class Target {
4. public String name = "hello";
5. }

What can directly access and change the value of the variable name?

- A. any class
- B. only the Target class
- C. any class in the test package
- D. any class that extends Target

**Answer:** C

**QUESTION:** 21

Given:

11. abstract class Vehicle { public int speed() { return 0; }
12. class Car extends Vehicle { public int speed() { return 60; }
13. class RaceCar extends Car { public int speed() { return 150; }

...

21. RaceCar racer = new RaceCar();
22. Car car = new RaceCar();
23. Vehicle vehicle = new RaceCar();
24. System.out.println(racer.speed() + ", " + car.speed()
25. + ", " + vehicle.speed());

What is the result?

- A. 0, 0, 0
- B. 150, 60, 0
- C. Compilation fails.
- D. 150, 150, 150

E. An exception is thrown at runtime.

**Answer:** D

**QUESTION:** 22

Given:

```

5. class Building { }
6. public class Barn extends Building {
7. public static void main(String[] args) {
8. Building build1 = new Building();
9. Barn barn1 = new Barn();
10. Barn barn2 = (Barn) build1;
11. Object obj1 = (Object) build1;
12. String str1 = (String) build1;
13. Building build2 = (Building) barn1;
14. }
15. }

```

Which is true?

- A. If line 10 is removed, the compilation succeeds.
- B. If line 11 is removed, the compilation succeeds.
- C. If line 12 is removed, the compilation succeeds.
- D. If line 13 is removed, the compilation succeeds.
- E. More than one line must be removed for compilation to succeed.

**Answer:** C

**QUESTION:** 23

A team of programmers is reviewing a proposed API for a new utility class. After some discussion, they realize that they can reduce the number of methods in the API without losing any functionality. If they implement the new design, which two OO principles will they be promoting?

- A. Looser coupling
- B. Tighter coupling
- C. Lower cohesion
- D. Higher cohesion
- E. Weaker encapsulation
- F. Stronger encapsulation

**Answer:** A

**QUESTION: 24**

Given:

```

21. class Money {
22. private String country = "Canada";
23. public String getC() { return country; }
24. }
25. class Yen extends Money {
26. public String getC() { return super.country; }
27. }
28. public class Euro extends Money {
29. public String getC(int x) { return super.getC(); }
30. public static void main(String[] args) {
31. System.out.print(new Yen().getC() + " " + new Euro().getC());
32. }
33. }

```

What is the result?

- A. Canada
- B. null Canada
- C. Canada null
- D. Canada Canada
- E. Compilation fails due to an error on line 26.
- F. Compilation fails due to an error on line 29.

**Answer: E****QUESTION: 25**Assuming that the `serializeBanana()` and the `deserializeBanana()` methods will correctly use Java serialization and given:

```

13. import java.io.*;
14. class Food implements Serializable {int good = 3;}
15. class Fruit extends Food {int juice = 5;}
16. public class Banana extends Fruit {
17. int yellow = 4;
18. public static void main(String [] args) {
19. Banana b = new Banana(); Banana b2 = new Banana();
20. b.serializeBanana(b); // assume correct serialization
21. b2 = b.deserializeBanana(); // assume correct
22. System.out.println("restore "+b2.yellow+ b2.juice+b2.good);
24. }
25. // more Banana methods go here
50. }

```

What is the result?

- A. restore 400
- B. restore 403
- C. restore 453
- D. Compilation fails.
- E. An exception is thrown at runtime.

**Answer:** C

**QUESTION: 26**

Given a valid DateFormat object named df, and

- 16. Date d = new Date(0L);
- 17. String ds = "December 15, 2004";
- 18. // insert code here

What updates d's value with the date represented by ds?

- A. 18. d = df.parse(ds);
- B. 18. d = df.getDate(ds);
- C. 18. try {  
19. d = df.parse(ds);  
20. } catch(ParseException e) { };
- D. 18. try {  
19. d = df.getDate(ds);  
20. } catch(ParseException e) { };

**Answer:** C

**QUESTION: 27**

Given:

- 11. double input = 314159.26;
- 12. NumberFormat nf = NumberFormat.getInstance(Locale.ITALIAN);
- 13. String b;
- 14. //insert code here

Which code, inserted at line 14, sets the value of b to 314.159,26?

- A. b = nf.parse( input );
- B. b = nf.format( input );
- C. b = nf.equals( input );
- D. b = nf.parseObject( input );

**Answer:** B

**QUESTION: 28**

Given:

```

1. public class TestString1 {
2. public static void main(String[] args) {
3. String str = "420";
4. str += 42;
5. System.out.print(str);
6. }
7. }

```

What is the output?

- A. 42
- B. 420
- C. 462
- D. 42042
- E. Compilation fails.
- F. An exception is thrown at runtime.

**Answer:** D

**QUESTION:** 29

Which capability exists only in java.io.FileWriter?

- A. Closing an open stream.
- B. Flushing an open stream.
- C. Writing to an open stream.
- D. Writing a line separator to an open stream.

**Answer:** D

**QUESTION:** 30

Given that the current directory is empty, and that the user has read and write permissions, and the following:

```

11. import java.io.*;
12. public class DOS {
13. public static void main(String[] args) {
14. File dir = new File("dir");
15. dir.mkdir();
16. File f1 = new File(dir, "f1.txt");
17. try {
18. f1.createNewFile();
19. } catch (IOException e) { ; }
20. File newDir = new File("newDir");
21. dir.renameTo(newDir);

```



22. }

23. }

Which statement is true?

- A. Compilation fails.
- B. The file system has a new empty directory named dir.
- C. The file system has a new empty directory named newDir.
- D. The file system has a directory named dir, containing a file fl.txt.
- E. The file system has a directory named newDir, containing a file fl.txt.

**Answer:** E

**QUESTION:** 31

Given:

22. `StringBuilder sb1 = new StringBuilder("123");`

23. `String s1 = "123";`

24. `// insert code here`

25. `System.out.println(sb1 + " " + s1);`

Which code fragment, inserted at line 24, outputs "123abc 123abc"?

- A. `sb1.append("abc"); s1.append("abc");`
- B. `sb1.append("abc"); s1.concat("abc");`
- C. `sb1.concat("abc"); s1.append("abc");`
- D. `sb1.concat("abc"); s1.concat("abc");`
- E. `sb1.append("abc"); s1 = s1.concat("abc");`
- F. `sb1.concat("abc"); s1 = s1.concat("abc");`
- G. `sb1.append("abc"); s1 = s1 + s1.concat("abc");`
- H. `sb1.concat("abc"); s1 = s1 + s1.concat("abc");`

**Answer:** E

**QUESTION:** 32

Click the Exhibit button.

Which code, inserted at line 14, will allow this class to correctly serialize and deserialize?

```

1. import java.io.*;
2. public class Foo implements Serializable
{
3.     public int x, y;
4.     public Foo( int x, int y ) { this.x =
x; this.y = y; }
5.
6.     private void writeObject(
ObjectOutputStream s )
7.         throws IOException {
8.         s.writeInt(x); s.writeInt(y) ;
9.     }
10.
11.     private void readObject(
ObjectInputStream s )
12.         throws IOException,
ClassNotFoundException {
13.
14.         // insert code here
15.
16.     }
17. }

```

- A. s.defaultReadObject();
- B. this = s.defaultReadObject();
- C. y = s.readInt(); x = s.readInt();
- D. x = s.readInt(); y = s.readInt();

**Answer:** D

**QUESTION:** 33

Given:

1. public class LineUp {
2. public static void main(String[] args) {
3. double d = 12.345;
4. // insert code here
5. }
6. }

Which code fragment, inserted at line 4, produces the output | 12.345|?

- A. System.out.printf("|% 7d| \n", d);
- B. System.out.printf("|% 7f| \n", d);
- C. System.out.printf("|% 3.7d| \n", d);
- D. System.out.printf("|% 3.7f| \n", d);
- E. System.out.printf("|% 7.3d| \n", d);
- F. System.out.printf("|% 7.3f| \n", d);

**Answer:** F

**QUESTION:** 34

Given:

```

11. public class Test {
12. public static void main(String [] args) {
13. int x = 5;
14. boolean b1 = true;
15. boolean b2 = false;
16.
17. if ((x == 4) && !b2 )
18. System.out.print("1 ");
19. System.out.print("2 ");
20. if ((b2 = true) && b1 )
21. System.out.print("3 ");
22. }
23. }

```

What is the result?

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

**Answer:** D

**QUESTION:** 35

Given:

```

10. interface Foo {}
11. class Alpha implements Foo {}
12. class Beta extends Alpha {}
13. class Delta extends Beta {
14. public static void main( String[] args ) {
15. Beta x = new Beta();
16. // insert code here
17. }
18. }

```

Which code, inserted at line 16, will cause a `java.lang.ClassCastException`?

- A. `Alpha a = x;`
- B. `Foo f = (Delta)x;`
- C. `Foo f = (Alpha)x;`
- D. `Beta b = (Beta)(Alpha)x;`

**Answer: B**

**QUESTION: 36**

Given:

```

22. public void go() {
23. String o = "";
24. z:
25. for(int x = 0; x < 3; x++) {
26. for(int y = 0; y < 2; y++) {
27. if(x==1) break;
28. if(x==2 && y==1) break z;
29. o = o + x + y;
30. }
31. }
32. System.out.println(o);
33. }

```

What is the result when the go() method is invoked?

- A. 00
- B. 0001
- C. 000120
- D. 00012021
- E. Compilation fails.
- F. An exception is thrown at runtime.

**Answer: C**

**QUESTION: 37**

Given:

```

11. static void test() throws RuntimeException {
12. try {
13. System.out.print("test ");
14. throw new RuntimeException();
15. }
16. catch (Exception ex) { System.out.print("exception "); }
17. }
18. public static void main(String[] args) {
19. try { test(); }
20. catch (RuntimeException ex) { System.out.print("runtime "); }
21. System.out.print("end ");
22. }

```

What is the result?

- A. test end

- B. Compilation fails.
- C. test runtime end
- D. test exception end
- E. A Throwable is thrown by main at runtime.

**Answer:** D

**QUESTION:** 38

Given:

```

33. try {
34. // some code here
35. } catch (NullPointerException e1) {
36. System.out.print("a");
37. } catch (Exception e2) {
38. System.out.print("b");
39. } finally {
40. System.out.print("c");
41. }

```

If some sort of exception is thrown at line 34, which output is possible?

- A. a
- B. b
- C. c
- D. ac
- E. abc

**Answer:** D

**QUESTION:** 39

Given:

```

31. // some code here
32. try {
33. // some code here
34. } catch (SomeException se) {
35. // some code here
36. } finally {
37. // some code here
38. }

```

Under which three circumstances will the code on line 37 be executed? (Choose three.)

- A. The instance gets garbage collected.
- B. The code on line 33 throws an exception.
- C. The code on line 35 throws an exception.

- D. The code on line 31 throws an exception.
- E. The code on line 33 executes successfully.

**Answer:** B,C,E

**QUESTION:** 40

Given:

10. `int x = 0;`
11. `int y = 10;`
12. `do {`
13. `y--;`
14. `++x;`
15. `} while (x < 5);`
16. `System.out.print(x + ", " + y);`

What is the result?

- A. 5,6
- B. 5,5
- C. 6,5
- D. 6,6

**Answer:** B

**QUESTION:** 41

Given:

1. `public class Donkey2 {`
2. `public static void main(String[] args) {`
3. `boolean assertsOn = true;`
4. `assert (assertsOn) : assertsOn = true;`
5. `if(assertsOn) {`
6. `System.out.println("assert is on");`
7. `}`
8. `}`
9. `}`

If class Donkey is invoked twice, the first time without assertions enabled, and the second time with assertions enabled, what are the results?

- A. no output
- B. no output  
assert is on
- C. assert is on
- D. no output  
An AssertionError is thrown.

E. assert is on  
An AssertionError is thrown.

**Answer:** C

**QUESTION:** 42

Click the Exhibit button.

Given:

```
31. public void method() {
32. A a = new A();
33. a.method1();
34. }
```

Which statement is true if a TestException is thrown on line 3 of class B?

```

1. public class A {
2.     public void method1() {
3.         try {
4.             B b = new B();
5.             b.method2();
6.             // more code here
7.         } catch (TestException te) {
8.             throw new RuntimeException(te);
9.         }
6.     }
7. }

1. public class B {
2.     public void method2() throws
TestException {
3.         // more code here
4.     }
5. }

1. public class TestException extends
Exception {
2. }
```

- A. Line 33 must be called within a try block.
- B. The exception thrown by method1 in class A is not required to be caught.
- C. The method declared on line 31 must be declared to throw a RuntimeException.
- D. On line 5 of class A, the call to method2 of class B does not need to be placed in a try/catch block.

**Answer:** B

**QUESTION:** 43

Given:

```
11. Float pi = new Float(3.14f);
12. if (pi > 3) {
13. System.out.print("pi is bigger than 3. ");
14. }
15. else {
16. System.out.print("pi is not bigger than 3. ");
17. }
```

```

18. finally {
19. System.out.println("Have a nice day.");
20. }

```

What is the result?

- A. Compilation fails.
- B. pi is bigger than 3.
- C. An exception occurs at runtime.
- D. pi is bigger than 3. Have a nice day.
- E. pi is not bigger than 3. Have a nice day.

**Answer:** A

**QUESTION:** 44

Given:

```

1. public class Boxer1 {
2. Integer i;
3. int x;
4. public Boxer1(int y) {
5. x = i+y;
6. System.out.println(x);
7. }
8. public static void main(String[] args) {
9. new Boxer1(new Integer(4));
10. }
11. }

```

What is the result?

- A. The value "4" is printed at the command line.
- B. Compilation fails because of an error in line 5.
- C. Compilation fails because of an error in line 9.
- D. A NullPointerException occurs at runtime.
- E. A NumberFormatException occurs at runtime.
- F. An IllegalStateException occurs at runtime.

**Answer:** D

**QUESTION:** 45

Given:

```

1. public class Person {
2. private String name;
3. public Person(String name) { this.name = name; }
4. public boolean equals(Person p) {

```



```

5. return p.name.equals(this.name);
6. }
7. }

```

Which statement is true?

- A. The equals method does NOT properly override the Object.equals method.
- B. Compilation fails because the private attribute p.name cannot be accessed in line 5.
- C. To work correctly with hash-based data structures, this class must also implement the hashCode method.
- D. When adding Person objects to a java.util.Set collection, the equals method in line 4 will prevent duplicates.

**Answer:** A

**QUESTION:** 46

Which two statements are true about the hashCode method? (Choose two.)

- A. The hashCode method for a given class can be used to test for object equality and object inequality for that class.
- B. The hashCode method is used by the java.util.SortedSet collection class to order the elements within that set.
- C. The hashCode method for a given class can be used to test for object inequality, but NOT object equality, for that class.
- D. The only important characteristic of the values returned by a hashCode method is that the distribution of values must follow a Gaussian distribution.
- E. The hashCode method is used by the java.util.HashSet collection class to group the elements within that set into hash buckets for swift retrieval.

**Answer:** C,E

**QUESTION:** 47

Given:

```

1. public class Score implements Comparable<Score> {
2. private int wins, losses;
3. public Score(int w, int l) { wins = w; losses = l; }
4. public int getWins() { return wins; }
5. public int getLosses() { return losses; }
6. public String toString() {
7. return "<" + wins + "," + losses + ">";
8. }
9. // insert code here
10. }

```

Which method will complete this class?

- A. `public int compareTo(Object o){/*more code here*/}`
- B. `public int compareTo(Score other){/*more code here*/}`
- C. `public int compare(Score s1,Score s2){/*more code here*/}`
- D. `public int compare(Object o1,Object o2){/*more code here*/}`

**Answer:** B

**QUESTION:** 48

Given a pre-generics implementation of a method:

```

11. public static int sum(List list) {
12.     int sum = 0;
13.     for ( Iterator iter = list.iterator(); iter.hasNext(); ) {
14.         int i = ((Integer)iter.next()).intValue();
15.         sum += i;
16.     }
17.     return sum;
18. }
```

What three changes allow the class to be used with generics and avoid an unchecked warning? (Choose three.)

- A. Remove line 14.
- B. Replace line 14 with `"int i = iter.next();"`.
- C. Replace line 13 with `"for (int i : intList) {"`.
- D. Replace line 13 with `"for (Iterator iter : intList) {"`.
- E. Replace the method declaration with `"sum(List<int> intList)"`.
- F. Replace the method declaration with `"sum(List<Integer> intList)"`.

**Answer:** A,C,F

**QUESTION:** 49

Given:

```

23. Object [] myObjects = {
24.     new Integer(12),
25.     new String("foo"),
26.     new Integer(5),
27.     new Boolean(true)
28. };
29. Arrays.sort(myObjects);
30. for(int i=0; i<myObjects.length; i++) {
31.     System.out.print(myObjects[i].toString());
32.     System.out.print(" ");
33. }
```

What is the result?

- A. Compilation fails due to an error in line 23.
- B. Compilation fails due to an error in line 29.
- C. A ClassCastException occurs in line 29.
- D. A ClassCastException occurs in line 31.
- E. The value of all four objects prints in natural order.

**Answer: C**

**QUESTION: 50**

Given a class Repetition:

1. package utils;
- 2.
3. public class Repetition {
4. public static String twice(String s) { return s + s; }
5. }

and given another class Demo:

1. // insert code here
- 2.
3. public class Demo {
4. public static void main(String[] args) {
5. System.out.println(twice("pizza"));
6. }
7. }

Which code should be inserted at line 1 of Demo.java to compile and run Demo to print "pizzapizza"?

- A. import utils.\*;
- B. static import utils.\*;
- C. import utils.Repetition.\*;
- D. static import utils.Repetition.\*;
- E. import utils.Repetition.twice();
- F. import static utils.Repetition.twice;
- G. static import utils.Repetition.twice;

**Answer: F**

**QUESTION: 51**

A UNIX user named Bob wants to replace his chess program with a new one, but he is not sure where the old one is installed. Bob is currently able to run a Java chess program starting from his home directory /home/bob using the command:

```
java -classpath /test:/home/bob/downloads/*.jar games.Chess
```

Bob's CLASSPATH is set (at login time) to:  
 /usr/lib:/home/bob/classes:/opt/java/lib:/opt/java/lib/\*.jar  
 What is a possible location for the Chess.class file?

- A. /test/Chess.class
- B. /home/bob/Chess.class
- C. /test/games/Chess.class
- D. /usr/lib/games/Chess.class
- E. /home/bob/games/Chess.class
- F. inside jarfile /opt/java/lib/Games.jar (with a correct manifest)
- G. inside jarfile /home/bob/downloads/Games.jar (with a correct manifest)

**Answer: C**

**QUESTION: 52**

Given the following directory structure:

```
bigProject
|--source
| |--Utils.java
|
|--classes
|--
```

And the following command line invocation:

```
javac -d classes source/Utils.java
```

Assume the current directory is bigProject, what is the result?

- A. If the compile is successful, Utils.class is added to the source directory.
- B. The compiler returns an invalid flag error.
- C. If the compile is successful, Utils.class is added to the classes directory.
- D. If the compile is successful, Utils.class is added to the bigProject directory.

**Answer: C**

**QUESTION: 53**

Given:

1. package com.company.application;
- 2.
3. public class MainClass {
4. public static void main(String[] args) { }
5. }

And MainClass exists in the /apps/com/company/application directory. Assume the CLASSPATH environment variable is set to "." (current directory). Which two java commands entered at the command line will run MainClass? (Choose two.)

- A. java MainClass if run from the /apps directory
- B. java com.company.application.MainClass if run from the /apps directory
- C. java -classpath /apps com.company.application.MainClass if run from any directory
- D. java -classpath . MainClass if run from the /apps/com/company/application directory
- E. java -classpath /apps/com/company/application:. MainClass if run from the /apps directory
- F. java com.company.application.MainClass if run from the /apps/com/company/application directory

**Answer:** B,C

**QUESTION:** 54

Which statement is true?

- A. A class's finalize() method CANNOT be invoked explicitly.
- B. super.finalize() is called implicitly by any overriding finalize() method.
- C. The finalize() method for a given object is called no more than once by the garbage collector.
- D. The order in which finalize() is called on two objects is based on the order in which the two objects became finalizable.

**Answer:** C

**QUESTION:** 55

Given:

```

3. public class Batman {
4. int squares = 81;
5. public static void main(String[] args) {
6. new Batman().go();
7. }
8. void go() {
9. incr(++squares);
10. System.out.println(squares);
11. }
12. void incr(int squares) { squares += 10; }
13. }

```

What is the result?

- A. 81
- B. 82
- C. 91
- D. 92

- E. Compilation fails.
- F. An exception is thrown at runtime.

**Answer: B**

**QUESTION: 56**

Given:

```

15. public class Yippee {
16. public static void main(String [] args) {
17. for(int x = 1; x < args.length; x++) {
18. System.out.print(args[x] + " ");
19. }
20. }
21. }

```

and two separate command line invocations:

```
java Yippee
```

```
java Yippee 1 2 3 4
```

What is the result?

- A. No output is produced.  
1 2 3
- B. No output is produced.  
2 3 4
- C. No output is produced.  
1 2 3 4
- D. An exception is thrown at runtime.  
1 2 3
- E. An exception is thrown at runtime.  
2 3 4
- F. An exception is thrown at runtime.  
1 2 3 4

**Answer: B**

**QUESTION: 57**

Given:

```

13. public class Pass {
14. public static void main(String [] args) {
15. int x = 5;
16. Pass p = new Pass();
17. p.doStuff(x);
18. System.out.print(" main x = " + x);
19. }

```

20.  
 21. void doStuff(int x) {  
 22. System.out.print(" doStuff x = " + x++);  
 23. }  
 24. }

What is the result?

- A. Compilation fails.
- B. An exception is thrown at runtime.
- C. doStuff x = 6 main x = 6
- D. doStuff x = 5 main x = 5
- E. doStuff x = 5 main x = 6
- F. doStuff x = 6 main x = 5

**Answer:** D

**QUESTION:** 58

Given:

```

3. interface Animal { void makeNoise(); }
4. class Horse implements Animal {
5. Long weight = 1200L;
6. public void makeNoise() { System.out.println("whinny"); }
7. }
8. public class Icelandic extends Horse {
9. public void makeNoise() { System.out.println("vinny"); }
10. public static void main(String[] args) {
11. Icelandic i1 = new Icelandic();
12. Icelandic i2 = new Icelandic();
12. Icelandic i3 = new Icelandic();
13. i3 = i1; i1 = i2; i2 = null; i3 = i1;
14. }
15. }
```

When line 14 is reached, how many objects are eligible for the garbage collector?

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4
- F. 6

**Answer:** E

**QUESTION: 59**

Given two files, GrizzlyBear.java and Salmon.java:

- ```

1. package animals.mammals;
2.
3. public class GrizzlyBear extends Bear {
4. void hunt() {
5. Salmon s = findSalmon();
6. s.consume();
7. }
8. }
1. package animals.fish;
2.
3. public class Salmon extends Fish {
4. public void consume() { /* do stuff */ }
5. }

```

If both classes are in the correct directories for their packages, and the Mammal class correctly defines the findSalmon() method, which change allows this code to compile?

- A. add import animals.mammals.\*; at line 2 in Salmon.java
- B. add import animals.fish.\*; at line 2 in GrizzlyBear.java
- C. add import animals.fish.Salmon.\*; at line 2 in GrizzlyBear.java
- D. add import animals.mammals.GrizzlyBear.\*; at line 2 in Salmon.java

**Answer: B**

**QUESTION: 60**

Given:

- ```

11. String[] elements = { "for", "tea", "too" };
12. String first = (elements.length > 0) elements[0] : null;

```

What is the result?

- A. Compilation fails.
- B. An exception is thrown at runtime.
- C. The variable first is set to null.
- D. The variable first is set to elements[0].

**Answer: D**

**QUESTION: 61**

A company has a business application that provides its users with many different reports: receivables reports, payables reports, revenue projects, and so on. The company has just purchased some new, state-of-the-art, wireless printers, and a programmer has been assigned the task of enhancing all of the reports to use not only the company's old



printers, but the new wireless printers as well. When the programmer starts looking into the application, the programmer discovers that because of the design of the application, it is necessary to make changes to each report to support the new printers. Which two design concepts most likely explain this situation? (Choose two.)

- A. Inheritance
- B. Low cohesion
- C. Tight coupling
- D. High cohesion
- E. Loose coupling
- F. Object immutability

**Answer:** B,C

**QUESTION:** 62

Given:

```
10. public class SuperCalc {
11.     protected static int multiply(int a, int b) { return a * b;}
12. }
```

and:

```
20. public class SubCalc extends SuperCalc{
21.     public static int multiply(int a, int b) {
22.         int c = super.multiply(a, b);
23.         return c;
24.     }
25. }
```

and:

```
30. SubCalc sc = new SubCalc ();
31. System.out.println(sc.multiply(3,4));
32. System.out.println(SubCalc.multiply(2,2));
```

What is the result?

- A. 12
- 4
- B. The code runs with no output.
- C. An exception is thrown at runtime.
- D. Compilation fails because of an error in line 21.
- E. Compilation fails because of an error in line 22.
- F. Compilation fails because of an error in line 31.

**Answer:** E

**QUESTION:** 63

Given:

```

31. class Foo {
32. public int a = 3;
33. public void addFive() { a += 5; System.out.print("f "); }
34. }
35. class Bar extends Foo {
36. public int a = 8;
37. public void addFive() { this.a += 5; System.out.print("b "); }
38. }

```

Invoked with:

```

Foo f = new Bar();
f.addFive();
System.out.println(f.a);

```

What is the result?

- A. b 3
- B. b 8
- C. b 13
- D. f 3
- E. f 8
- F. f 13
- G. Compilation fails.
- H. An exception is thrown at runtime.

**Answer:** A

**QUESTION:** 64

A company that makes Computer Assisted Design (CAD) software has, within its application, some utility classes that are used to perform 3D rendering tasks. The company's chief scientist has just improved the performance of one of the utility classes' key rendering algorithms, and has assigned a programmer to replace the old algorithm with the new algorithm. When the programmer begins researching the utility classes, she is happy to discover that the algorithm to be replaced exists in only one class. The programmer reviews that class's API, and replaces the old algorithm with the new algorithm, being careful that her changes adhere strictly to the class's API. Once testing has begun, the programmer discovers that other classes that use the class she changed are no longer working properly. What design flaw is most likely the cause of these new bugs?

- A. Inheritance
- B. Tight coupling
- C. Low cohesion
- D. High cohesion
- E. Loose coupling

## F. Object immutability

**Answer:** B**QUESTION:** 65

Given:

```

1. class ClassA {
2. public int numberOfInstances;
3. protected ClassA(int numberOfInstances) {
4. this.numberOfInstances = numberOfInstances;
5. }
6. }
7. public class ExtendedA extends ClassA {
8. private ExtendedA(int numberOfInstances) {
9. super(numberOfInstances);
10. }
11. public static void main(String[] args) {
12. ExtendedA ext = new ExtendedA(420);
13. System.out.print(ext.numberOfInstances);
14. }
15. }

```

Which statement is true?

- A. 420 is the output.
- B. An exception is thrown at runtime.
- C. All constructors must be declared public.
- D. Constructors CANNOT use the private modifier.
- E. Constructors CANNOT use the protected modifier.

**Answer:** A**QUESTION:** 66

Given:

```

11. class ClassA {}
12. class ClassB extends ClassA {}
13. class ClassC extends ClassA {}

```

and:

```

21. ClassA p0 = new ClassA();
22. ClassB p1 = new ClassB();
23. ClassC p2 = new ClassC();
24. ClassA p3 = new ClassB();
25. ClassA p4 = new ClassC();

```

Which three are valid? (Choose three.)

- A. p0 = p1;
- B. p1 = p2;
- C. p2 = p4;
- D. p2 = (ClassC)p1;
- E. p1 = (ClassB)p3;
- F. p2 = (ClassC)p4;

**Answer:** A,E,F

**QUESTION:** 67

Given:

- 5. class Thingy { Meter m = new Meter(); }
- 6. class Component { void go() { System.out.print("c"); } }
- 7. class Meter extends Component { void go() { System.out.print("m"); } }
- 8.
- 9. class DeluxeThingy extends Thingy {
- 10. public static void main(String[] args) {
- 11. DeluxeThingy dt = new DeluxeThingy();
- 12. dt.m.go();
- 13. Thingy t = new DeluxeThingy();
- 14. t.m.go();
- 15. }
- 16. }

Which two are true? (Choose two.)

- A. The output is mm.
- B. The output is mc.
- C. Component is-a Meter.
- D. Component has-a Meter.
- E. DeluxeThingy is-a Component.
- F. DeluxeThingy has-a Component.

**Answer:** A,F

**QUESTION:** 68

Given:

- 10. interface Jumper { public void jump(); }
- ...
- 20. class Animal { }
- ...
- 30. class Dog extends Animal {
- 31. Tail tail;

```

32. }
...
40. class Beagle extends Dog implements Jumper{
41. public void jump() {}
42. }
...
50. class Cat implements Jumper{
51. public void jump() {}
52. }
Which three are true? (Choose three.)

```

- A. Cat is-a Animal
- B. Cat is-a Jumper
- C. Dog is-a Animal
- D. Dog is-a Jumper
- E. Cat has-a Animal
- F. Beagle has-a Tail
- G. Beagle has-a Jumper

**Answer:** B,C,F

**QUESTION:** 69

Given:

```

1. import java.util.*;
2. public class WrappedString {
3. private String s;
4. public WrappedString(String s) { this.s = s; }
5. public static void main(String[] args) {
6. HashSet<Object> hs = new HashSet<Object>();
7. WrappedString ws1 = new WrappedString("aardvark");
8. WrappedString ws2 = new WrappedString("aardvark");
9. String s1 = new String("aardvark");
10. String s2 = new String("aardvark");
11. hs.add(ws1); hs.add(ws2); hs.add(s1); hs.add(s2);
12. System.out.println(hs.size()); } }

```

What is the result?

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

**Answer:** D

**QUESTION:** 70

Given:

```

11. // insert code here
12. private N min, max;
13. public N getMin() { return min; }
14. public N getMax() { return max; }
15. public void add(N added) {
16. if (min == null || added.doubleValue() < min.doubleValue())
17. min = added;
18. if (max == null || added.doubleValue() > max.doubleValue())
19. max = added;
20. }
21. }

```

Which two, inserted at line 11, will allow the code to compile? (Choose two.)

- A. public class MinMax<?> {
- B. public class MinMax<? extends Number> {
- C. public class MinMax<N extends Object> {
- D. public class MinMax<N extends Number> {
- E. public class MinMax<? extends Object> {
- F. public class MinMax<N extends Integer> {

**Answer:** D,F

**QUESTION:** 71

Given:

```

3. import java.util.*;
4. public class G1 {
5. public void takeList(List<? extends String> list) {
6. // insert code here
7. }
8. }

```

Which three code fragments, inserted independently at line 6, will compile? (Choose three.)

- A. list.add("foo");
- B. Object o = list;
- C. String s = list.get(0);
- D. list = new ArrayList<String>();
- E. list = new ArrayList<Object>();

**Answer:** B,C,D

**QUESTION:** 72

Given that the elements of a PriorityQueue are ordered according to natural ordering, and:

```

2. import java.util.*;
3. public class GetInLine {
4. public static void main(String[] args) {
5. PriorityQueue<String> pq = new PriorityQueue<String>();
6. pq.add("banana");
7. pq.add("pear");
8. pq.add("apple");
9. System.out.println(pq.poll() + " " + pq.peek());
10. }
11. }

```

What is the result?

- A. apple pear
- B. banana pear
- C. apple apple
- D. apple banana
- E. banana banana

**Answer:** D

**QUESTION:** 73

Given a pre-generics implementation of a method:

```

11. public static int sum(List list) {
12. int sum = 0;
13. for ( Iterator iter = list.iterator(); iter.hasNext(); ) {
14. int i = ((Integer)iter.next()).intValue();
15. sum += i;
16. }
17. return sum;
18. }

```

Which three changes must be made to the method sum to use generics? (Choose three.)

- A. Remove line 14.
- B. Replace line 13 with "for (int i : intList) {".
- C. Replace line 13 with "for (Iterator iter : intList) {".
- D. Replace the method declaration with "sum(List<int> intList)".
- E. Replace the method declaration with "sum(List<Integer> intList)".

**Answer:** A,B,E

**QUESTION:** 74

Given:

```
enum Example { ONE, TWO, THREE }
```

Which statement is true?

- A. The expressions `(ONE == ONE)` and `ONE.equals(ONE)` are both guaranteed to be true.
- B. The expression `(ONE < TWO)` is guaranteed to be true and `ONE.compareTo(TWO)` is guaranteed to be less than one.
- C. The Example values cannot be used in a raw `java.util.HashMap`; instead, the programmer must use a `java.util.EnumMap`.
- D. The Example values can be used in a `java.util.SortedSet`, but the set will NOT be sorted because enumerated types do NOT implement `java.lang.Comparable`.

**Answer:** A

**QUESTION:** 75

Given:

```
3. import java.util.*;
4. public class Mapit {
5.     public static void main(String[] args) {
6.         Set<Integer> set = new HashSet<Integer>();
7.         Integer i1 = 45;
8.         Integer i2 = 46;
9.         set.add(i1);
10.        set.add(i1);
11.        set.add(i2); System.out.print(set.size() + " ");
12.        set.remove(i1); System.out.print(set.size() + " ");
13.        i2 = 47;
14.        set.remove(i2); System.out.print(set.size() + " ");
15.    }
16. }
```

What is the result?

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



**Answer: B**

**QUESTION: 76**

Given:

```

12. import java.util.*;
13. public class Explorer1 {
14. public static void main(String[] args) {
15. TreeSet<Integer> s = new TreeSet<Integer>();
16. TreeSet<Integer> subs = new TreeSet<Integer>();
17. for(int i = 606; i < 613; i++) 18. if(i%2 == 0) s.add(i);
19. subs = (TreeSet)s.subSet(608, true, 611, true);
20. s.add(609);
21. System.out.println(s + " " + subs);
22. }
23. }

```

What is the result?

- A. Compilation fails.
- B. An exception is thrown at runtime.
- C. [608, 609, 610, 612] [608, 610]
- D. [608, 609, 610, 612] [608, 609, 610]
- E. [606, 608, 609, 610, 612] [608, 610]
- F. [606, 608, 609, 610, 612] [608, 609, 610]

**Answer: F**

**QUESTION: 77**

Given:

```

3. import java.util.*;
4. public class Quest {
5. public static void main(String[] args) {
6. String[] colors = {"blue", "red", "green", "yellow", "orange"};
7. Arrays.sort(colors);
8. int s2 = Arrays.binarySearch(colors, "orange");
9. int s3 = Arrays.binarySearch(colors, "violet");
10. System.out.println(s2 + " " + s3);
11. }
12. }

```

What is the result?

- A. 2 -1
- B. 2 -4

- C. 2 -5
- D. 3 -1
- E. 3 -4
- F. 3 -5
- G. Compilation fails.
- H. An exception is thrown at runtime.

**Answer:** C

**QUESTION:** 78

Given:

```
34. HashMap props = new HashMap();
35. props.put("key45", "some value");
36. props.put("key12", "some other value");
37. props.put("key39", "yet another value");
38. Set s = props.keySet();
39. // insert code here
```

What, inserted at line 39, will sort the keys in the props HashMap?

- A. Arrays.sort(s);
- B. s = new TreeSet(s);
- C. Collections.sort(s);
- D. s = new SortedSet(s);

**Answer:** B

**QUESTION:** 79

Which two statements are true? (Choose two.)

- A. It is possible to synchronize static methods.
- B. When a thread has yielded as a result of yield(), it releases its locks.
- C. When a thread is sleeping as a result of sleep(), it releases its locks.
- D. The Object.wait() method can be invoked only from a synchronized context.
- E. The Thread.sleep() method can be invoked only from a synchronized context.
- F. When the thread scheduler receives a notify() request, and notifies a thread, that thread immediately releases its lock.

**Answer:** A,D

**QUESTION:** 80

Given:

```
7. void waitForSignal() {
```

```

8. Object obj = new Object();
9. synchronized (Thread.currentThread()) {
10. obj.wait();
11. obj.notify();
12. }
13. }

```

Which statement is true?

- A. This code can throw an InterruptedException.
- B. This code can throw an IllegalMonitorStateException.
- C. This code can throw a TimeoutException after ten minutes.
- D. Reversing the order of obj.wait() and obj.notify() might cause this method to complete normally.
- E. A call to notify() or notifyAll() from another thread might cause this method to complete normally.
- F. This code does NOT compile unless "obj.wait()" is replaced with "((Thread) obj).wait()".

**Answer:** B

**QUESTION:** 81

Given:

```

1. public class TestOne implements Runnable {
2. public static void main (String[] args) throws Exception {
3. Thread t = new Thread(new TestOne());
4. t.start();
5. System.out.print("Started");
6. t.join();
7. System.out.print("Complete");
8. }
9. public void run() {
10. for (int i = 0; i < 4; i++) {
11. System.out.print(i);
12. }
13. }
14. }

```

What can be a result?

- A. Compilation fails.
- B. An exception is thrown at runtime.
- C. The code executes and prints "StartedComplete".
- D. The code executes and prints "StartedComplete0123".
- E. The code executes and prints "Started0123Complete".

**Answer:** E

**QUESTION:** 82

Which three will compile and run without exception? (Choose three.)

- A. private synchronized Object o;
- B. void go() {  
synchronized() { /\* code here \*/ }
- C. public synchronized void go() { /\* code here \*/ }
- D. private synchronized(this) void go() { /\* code here \*/ }
- E. void go() {  
synchronized(Object.class) { /\* code here \*/ }
- F. void go() {  
Object o = new Object();  
synchronized(o) { /\* code here \*/ }

**Answer:** C,E,F

**QUESTION:** 83

Given:

1. public class TestFive {
2. private int x;
3. public void foo() {
4. int current = x;
5. x = current + 1;
6. }
7. public void go() {
8. for(int i = 0; i < 5; i++) {
9. new Thread() {
10. public void run() {
11. foo();
12. System.out.print(x + ", ");
13. } }.start();
14. } }

Which two changes, taken together, would guarantee the output: 1, 2, 3, 4, 5, ? (Choose two.)

- A. move the line 12 print statement into the foo() method
- B. change line 7 to public synchronized void go() {
- C. change the variable declaration on line 2 to private volatile int x;
- D. wrap the code inside the foo() method with a synchronized( this ) block
- E. wrap the for loop code inside the go() method with a synchronized block  
synchronized(this) { // for loop code here }

**Answer:** A,D

**QUESTION:** 84

Given that t1 is a reference to a live thread, which is true?

- A. The Thread.sleep() method can take t1 as an argument.
- B. The Object.notify() method can take t1 as an argument.
- C. The Thread.yield() method can take t1 as an argument.
- D. The Thread.setPriority() method can take t1 as an argument.
- E. The Object.notify() method arbitrarily chooses which thread to notify.

**Answer:** E

**QUESTION:** 85

Given:

```

11. Runnable r = new Runnable() {
12. public void run() {
13. System.out.print("Cat");
14. }
15. };
16. Thread t = new Thread(r) {
17. public void run() {
18. System.out.print("Dog");
19. }
20. };
21. t.start();

```

What is the result?

- A. Cat
- B. Dog
- C. Compilation fails.
- D. The code runs with no output.
- E. An exception is thrown at runtime.

**Answer:** B

**QUESTION:** 86

Given:

```

1. public class Threads5 {
2. public static void main (String[] args) {
3. new Thread(new Runnable() {

```

```

4. public void run() {
5. System.out.print("bar");
6. })).start();
7. }
8. }

```

What is the result?

- A. Compilation fails.
- B. An exception is thrown at runtime.
- C. The code executes normally and prints "bar".
- D. The code executes normally, but nothing prints.

**Answer:** C

**QUESTION:** 87

Given:

```

10. class One {
11. void foo() { }
12. }
13. class Two extends One {
14. //insert method here
15. }

```

Which three methods, inserted individually at line 14, will correctly complete class Two?  
(Choose three.)

- A. int foo() { /\* more code here \*/ }
- B. void foo() { /\* more code here \*/ }
- C. public void foo() { /\* more code here \*/ }
- D. private void foo() { /\* more code here \*/ }
- E. protected void foo() { /\* more code here \*/ }

**Answer:** B,C,E

**QUESTION:** 88

Given:

```

10. abstract public class Employee {
11. protected abstract double getSalesAmount();
12. public double getCommision() {
13. return getSalesAmount() * 0.15;
14. }
15. }
16. class Sales extends Employee {
17. // insert method here

```

18. }

Which two methods, inserted independently at line 17, correctly complete the Sales class? (Choose two.)

- A. double getSalesAmount() { return 1230.45; }
- B. public double getSalesAmount() { return 1230.45; }
- C. private double getSalesAmount() { return 1230.45; }
- D. protected double getSalesAmount() { return 1230.45; }

**Answer:** B,D

**QUESTION:** 89

Given:

1. class X {
2. X() { System.out.print(1); }
3. X(int x) {
4. this(); System.out.print(2);
5. }
6. }
7. public class Y extends X {
8. Y() { super(6); System.out.print(3); }
9. Y(int y) {
10. this(); System.out.println(4);
11. }
12. public static void main(String[] a) { new Y(5); }
13. }

What is the result?

- A. 13
- B. 134
- C. 1234
- D. 2134
- E. 2143
- F. 4321

**Answer:** C

**QUESTION:** 90

Given:

10. package com.sun.scjp;
11. public class Geodetics {
12. public static final double DIAMETER = 12756.32; // kilometers
13. }

Which two correctly access the DIAMETER member of the Geodetics class? (Choose two.)

- A. `import com.sun.scjp.Geodetics;`  
`public class TerraCarta {`  
`public double halfway()`  
`{ return Geodetics.DIAMETER/2.0; }`
- B. `import static com.sun.scjp.Geodetics;`  
`public class TerraCarta{`  
`public double halfway() { return DIAMETER/2.0; } }`
- C. `import static com.sun.scjp.Geodetics.*;`  
`public class TerraCarta {`  
`public double halfway() { return DIAMETER/2.0; } }`
- D. `package com.sun.scjp;`  
`public class TerraCarta {`  
`public double halfway() { return DIAMETER/2.0; } }`

**Answer:** A,C

**QUESTION:** 91

Given:

1. `public class A {`
2. `public void doit() {`
3. `}`
4. `public String doit() {`
5. `return "a";`
6. `}`
7. `public double doit(int x) {`
8. `return 1.0;`
9. `}`
10. `}`

What is the result?

- A. An exception is thrown at runtime.
- B. Compilation fails because of an error in line 7.
- C. Compilation fails because of an error in line 4.
- D. Compilation succeeds and no runtime errors with class A occur.

**Answer:** C

**QUESTION:** 92

Given:

35. `String #name = "Jane Doe";`



```

36. int $age = 24;
37. Double _height = 123.5;
38. double ~temp = 37.5;

```

Which two statements are true? (Choose two.)

- A. Line 35 will not compile.
- B. Line 36 will not compile.
- C. Line 37 will not compile.
- D. Line 38 will not compile.

**Answer:** A,D

**QUESTION:** 93

Given:

```

10. interface Foo { int bar(); }
11. public class Sprite {
12. public int fubar( Foo foo ) { return foo.bar(); }
13. public void testFoo() {
14. fubar(
15. // insert code here
16. );
17. }
18. }

```

Which code, inserted at line 15, allows the class Sprite to compile?

- A. Foo { public int bar() { return 1; } }
- B. new Foo { public int bar() { return 1; } }
- C. new Foo() { public int bar() { return 1; } }
- D. new class Foo { public int bar() { return 1; } }

**Answer:** C

**QUESTION:** 94

Given:

```

11. public enum Title {
12. MR("Mr."), MRS("Mrs."), MS("Ms.");
13. private final String title;
14. private Title(String t) { title = t; }
15. public String format(String last, String first) {
16. return title + " " + first + " " + last;
17. }
18. }
19. public static void main(String[] args) {

```

```
20. System.out.println(Title.MR.format("Doe", "John"));
21. }
```

What is the result?

- A. Mr. John Doe
- B. An exception is thrown at runtime.
- C. Compilation fails because of an error in line 12.
- D. Compilation fails because of an error in line 15.
- E. Compilation fails because of an error in line 20.

**Answer:** A

**QUESTION:** 95

Given the following six method names:

```
addListener
addMouseListener
setMouseListener
deleteMouseListener
removeMouseListener
registerMouseListener
```

How many of these method names follow JavaBean Listener naming rules?

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

**Answer:** B

**QUESTION:** 96

Given:

```
10. class Line {
11. public static class Point {}
12. }
13.
14. class Triangle {
15. // insert code here
16. }
```

Which code, inserted at line 15, creates an instance of the Point class defined in Line?

- A. Point p = new Point();
- B. Line.Point p = new Line.Point();

- C. The Point class cannot be instantiated at line 15.  
 D. Line 1 = new Line() ; l.Point p = new l.Point();

**Answer:** B

**QUESTION:** 97

Given

11. public interface Status {  
 12. /\* insert code here \*/ int MY\_VALUE = 10;  
 13. }

Which three are valid on line 12? (Choose three.)

- A. final  
 B. static  
 C. native  
 D. public  
 E. private  
 F. abstract  
 G. protected

**Answer:** A,B,D

**QUESTION:** 98

Click the Exhibit button.

Given this code from Class B:

25. A a1 = new A();  
 26. A a2 = new A();  
 27. A a3 = new A();  
 28. System.out.println(A.getInstanceCount());

What is the result?

```

1. public class A {
2.
3.     private int counter = 0;
4.
5.     public static int getInstanceCount() {
6.         return counter;
7.     }
8.
9.     public A() {
10.        counter++;
11.    }
12.
13. }
```

- A. Compilation of class A fails.
- B. Line 28 prints the value 3 to System.out.
- C. Line 28 prints the value 1 to System.out.
- D. A runtime error occurs when line 25 executes.
- E. Compilation fails because of an error on line 28.

**Answer:** A

**QUESTION:** 99

Given classes defined in two different files:

1. package util;
2. public class BitUtils {
3. public static void process(byte[] b) { /\* more code here \*/ }
4. }
1. package app;
2. public class SomeApp {
3. public static void main(String[] args) {
4. byte[] bytes = new byte[256];
5. // insert code here
6. }
7. }

What is required at line 5 in class SomeApp to use the process method of BitUtils?

- A. process(bytes);
- B. BitUtils.process(bytes);
- C. util.BitUtils.process(bytes);
- D. SomeApp cannot use methods in BitUtils.
- E. import util.BitUtils.\*; process(bytes);

**Answer:** C

**QUESTION:** 100

Click the Exhibit button.

Which three code fragments, added individually at line 29, produce the output 100?  
(Choose three.)

```

10. class Inner {
11.     private int x;
12.     public void setX( int x ) { this.x = x;
13.     }
14.     public int getX() { return x; }
15. }
16. class Outer {
17.     private Inner y;
18.     public void setY( Inner y ) { this.y =
19.     y; }
20.     public Inner getY() { return y; }
21. }
22. public class Gamma {
23.     public static void main( String[] args
24.     ) {
25.         Outer o = new Outer();
26.         Inner i = new Inner();
27.         int n = 10;
28.         i.setX( n );
29.         o.setY( i );
30.         // insert code here
31.         System.out.println( o.getY().getX() );
32.     }

```

- A. n = 100;
- B. i.setX( 100 );
- C. o.getY().setX( 100 );
- D. i = new Inner(); i.setX( 100 );
- E. o.setY( i ); i = new Inner(); i.setX( 100 );
- F. i = new Inner(); i.setX( 100 ); o.setY( i );

**Answer:** B,C,F

**QUESTION:** 101

Click the Exhibit button.

Given the fully-qualified class names:

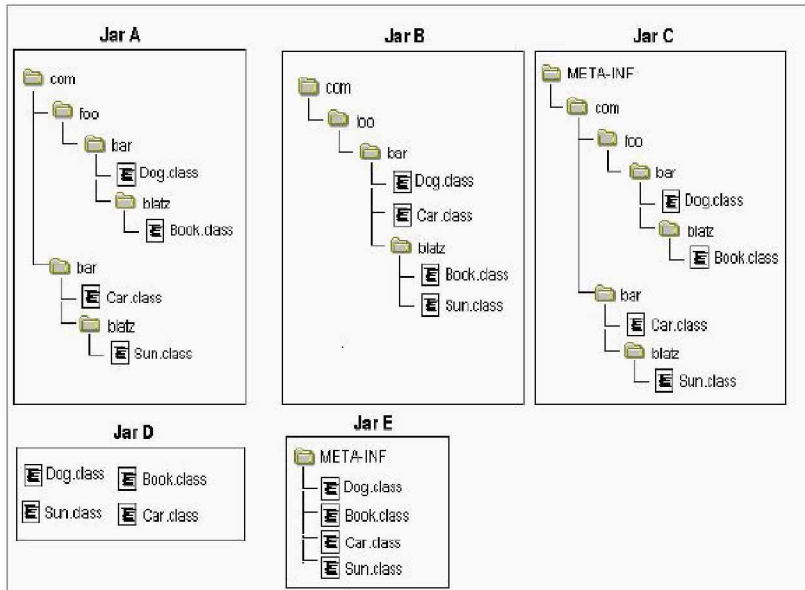
com.foo.bar.Dog

com.foo.bar.blatz.Book

com.bar.Car

com.bar.blatz.Sun

Which graph represents the correct directory structure for a JAR file from which those classes can be used by the compiler and JVM?



- A. Jar A
- B. Jar B
- C. Jar C
- D. Jar D
- E. Jar E

**Answer:** A

**QUESTION:** 102

Which statement is true?

- A. A class's finalize() method CANNOT be invoked explicitly.
- B. super.finalize() is called implicitly by any overriding finalize() method.
- C. The finalize() method for a given object is called no more than once by the garbage collector.
- D. The order in which finalize() is called on two objects is based on the order in which the two objects became finalizable.

**Answer:** C

**QUESTION:** 103

Given:

- 11. class Snoochy {
- 12. Boochy booch;

```

13. public Snoochy() { booch = new Boochy(this); }
14. }
15.
16. class Boochy {
17. Snoochy snooch;
18. public Boochy(Snoochy s) { snooch = s; }
19. }

```

And the statements:

```

21. public static void main(String[] args) {
22. Snoochy snoog = new Snoochy();
23. snoog = null;
24. // more code here
25. }

```

Which statement is true about the objects referenced by snoog, snooch, and booch immediately after line 23 executes?

- A. None of these objects are eligible for garbage collection.
- B. Only the object referenced by booch is eligible for garbage collection.
- C. Only the object referenced by snoog is eligible for garbage collection.
- D. Only the object referenced by snooch is eligible for garbage collection.
- E. The objects referenced by snooch and booch are eligible for garbage collection.

**Answer:** E

**QUESTION:** 104

Given:

```

3. interface Animal { void makeNoise(); }
4. class Horse implements Animal {
5. Long weight = 1200L;
6. public void makeNoise() { System.out.println("whinny"); }
7. }
8. public class Icelandic extends Horse {
9. public void makeNoise() { System.out.println("vinny"); }
10. public static void main(String[] args) {
11. Icelandic i1 = new Icelandic();
12. Icelandic i2 = new Icelandic();
13. Icelandic i3 = new Icelandic();
14. i3 = i1; i1 = i2; i2 = null; i3 = i1;
15. }
16. }

```

When line 15 is reached, how many objects are eligible for the garbage collector?

- A. 0
- B. 1

- C. 2
- D. 3
- E. 4
- F. 6

**Answer:** E

**QUESTION:** 105

Given:

```

5. class Payload {
6. private int weight;
7. public Payload (int w) { weight = w; }
8. public void setWeight(int w) { weight = w; }
9. public String toString() { return Integer.toString(weight); }
10. }
11. public class TestPayload {
12. static void changePayload(Payload p) { /* insert code */ }
13. public static void main(String[] args) {
14. Payload p = new Payload(200);
15. p.setWeight(1024);
16. changePayload(p);
17. System.out.println("p is " + p);
18. } }

```

Which code fragment, inserted at the end of line 12, produces the output p is 420?

- A. p.setWeight(420);
- B. p.changePayload(420);
- C. p = new Payload(420);
- D. Payload.setWeight(420);
- E. p = Payload.setWeight(420);

**Answer:** A

**QUESTION:** 106

Given:

```

11. public static void test(String str) {
12. int check = 4;
13. if (check = str.length()) {
14. System.out.print(str.charAt(check -= 1) + ", ");
15. } else {
16. System.out.print(str.charAt(0) + ", ");
17. }
18. }

```



and the invocation:

21. test("four");
22. test("tee");
23. test("to");

What is the result?

- A. r, t, t,
- B. r, e, o,
- C. Compilation fails.
- D. An exception is thrown at runtime.

**Answer:** C

**QUESTION:** 107

A UNIX user named Bob wants to replace his chess program with a new one, but he is not sure where the old one is installed. Bob is currently able to run a Java chess program starting from his home directory /home/bob using the command:

```
java -classpath /test:/home/bob/downloads/*.jar games.
```

Chess Bob's CLASSPATH is set (at login time) to:

```
/usr/lib:/home/bob/classes:/opt/java/lib:/opt/java/lib/*.jar
```

What is a possible location for the Chess.class file?

- A. /test/Chess.class
- B. /home/bob/Chess.class
- C. /test/games/Chess.class
- D. /usr/lib/games/Chess.class
- E. /home/bob/games/Chess.class
- F. inside jarfile /opt/java/lib/Games.jar (with a correct manifest)
- G. inside jarfile /home/bob/downloads/Games.jar (with a correct manifest)

**Answer:** C

**QUESTION:** 108

Given classes defined in two different files:

1. package util;
2. public class BitUtils {
3. private static void process(byte[] b) {}
4. }
1. package app;
2. public class SomeApp {
3. public static void main(String[] args) {
4. byte[] bytes = new byte[256];
5. // insert code here

6. }  
7. }

What is required at line 5 in class SomeApp to use the process method of BitUtils?

- A. process(bytes);
- B. BitUtils.process(bytes);
- C. app.BitUtils.process(bytes);
- D. util.BitUtils.process(bytes);
- E. import util.BitUtils.\*; process(bytes);
- F. SomeApp cannot use the process method in BitUtils.

**Answer:** F

**QUESTION:** 109

Given:

```
15. public class Pass2 {
16.     public void main(String [] args) {
17.         int x = 6;
18.         Pass2 p = new Pass2();
19.         p.doStuff(x);
20.         System.out.print(" main x = " + x);
21.     }
22.
23.     void doStuff(int x) {
24.         System.out.print(" doStuff x = " + x++);
25.     }
26. }
```

And the command-line invocations:

```
javac Pass2.java
java Pass2 5
```

What is the result?

- A. Compilation fails.
- B. An exception is thrown at runtime.
- C. doStuff x = 6 main x = 6
- D. doStuff x = 6 main x = 7
- E. doStuff x = 7 main x = 6
- F. doStuff x = 7 main x = 7

**Answer:** B

**QUESTION:** 110

Given:

```

12. public class Test {
13.     public enum Dogs {collie, harrier};
14.     public static void main(String [] args) {
15.         Dogs myDog = Dogs.collie;
16.         switch (myDog) {
17.             case collie:
18.                 System.out.print("collie ");
19.             case harrier:
20.                 System.out.print("harrier ");
21.         }
22.     }
23. }

```

What is the result?

- A. collie
- B. harrier
- C. Compilation fails.
- D. collie harrier
- E. An exception is thrown at runtime.

**Answer:** D

**QUESTION:** 111

Given:

```

1. public class Donkey {
2.     public static void main(String[] args) {
3.         boolean assertsOn = false;
4.         assert (assertsOn) : assertsOn = true;
5.         if(assertsOn) {
6.             System.out.println("assert is on");
7.         }
8.     }
9. }

```

If class Donkey is invoked twice, the first time without assertions enabled, and the second time with assertions enabled, what are the results?

- A. no output
- B. no output  
assert is on
- C. assert is on
- D. no output  
An AssertionError is thrown.
- E. assert is on  
An AssertionError is thrown.

**Answer:** D

**QUESTION:** 112

Given:

```
11. static void test() {
12. try {
13. String x = null;
14. System.out.print(x.toString() + " ");
15. }
16. finally { System.out.print("finally "); }
17. }
18. public static void main(String[] args) {
19. try { test(); }
20. catch (Exception ex) { System.out.print("exception "); }
21. }
```

What is the result?

- A. null
- B. finally
- C. null finally
- D. Compilation fails.
- E. finally exception

**Answer:** E

**QUESTION:** 113

Given:

```
11. static void test() throws Error {
12. if (true) throw new AssertionError();
13. System.out.print("test ");
14. }
15. public static void main(String[] args) {
16. try { test(); }
17. catch (Exception ex) { System.out.print("exception "); }
18. System.out.print("end ");
19. }
```

What is the result?

- A. end
- B. Compilation fails.
- C. exception end
- D. exception test end

- E. A Throwable is thrown by main.
- F. An Exception is thrown by main.

**Answer:** E

**QUESTION:** 114

Given:

1. class TestException extends Exception { }
2. class A {
3. public String sayHello(String name) throws TestException {
4. if(name == null) throw new TestException();
5. return "Hello " + name;
6. }
7. }
8. public class TestA {
9. public static void main(String[] args) {
10. new A().sayHello("Aiko");
11. }
12. }

Which statement is true?

- A. Compilation succeeds.
- B. Class A does not compile.
- C. The method declared on line 9 cannot be modified to throw TestException.
- D. TestA compiles if line 10 is enclosed in a try/catch block that catches TestException.

**Answer:** D

**QUESTION:** 115

Given:

11. public static Collection get() {
12. Collection sorted = new LinkedList();
13. sorted.add("B"); sorted.add("C"); sorted.add("A");
14. return sorted;
15. }
16. public static void main(String[] args) {
17. for (Object obj: get()) {
18. System.out.print(obj + ", ");
19. }
20. }

What is the result?

- A. A, B, C,

- B. B, C, A,
- C. Compilation fails.
- D. The code runs with no output.
- E. An exception is thrown at runtime.

**Answer: B**

**QUESTION: 116**

Given:

```

11. static class A {
12. void process() throws Exception { throw new Exception(); }
13. }
14. static class B extends A {
15. void process() { System.out.println("B"); }
16. }
17. public static void main(String[] args) {
18. new B().process();
19. }

```

What is the result?

- A. B
- B. The code runs with no output.
- C. Compilation fails because of an error in line 12.
- D. Compilation fails because of an error in line 15.
- E. Compilation fails because of an error in line 18.

**Answer: A**

**QUESTION: 117**

Given:

```

10. public class Foo {
11. static int[] a;
12. static { a[0]=2; }
13. public static void main( String[] args ) {}
14. }

```

Which exception or error will be thrown when a programmer attempts to run this code?

- A. java.lang.StackOverflowError
- B. java.lang.IllegalStateException
- C. java.lang.ExceptionInInitializerError
- D. java.lang.ArrayIndexOutOfBoundsException

**Answer: C**

**QUESTION: 118**

Click the Exhibit button.

Given: `ClassA a = new ClassA();`

`a.methodA();`

What is the result?

```

10. public class ClassA {
11.     public void methodA() {
12.         ClassB classB = new ClassB();
13.         classB.getValue();
14.     }
15. }

```

And:

```

20. class ClassB {
21.     public ClassC classC;
22.
23.     public String getValue() {
24.         return classC.getValue();
25.     }
26. }

```

And:

```

30. class ClassC {
31.     public String value;
32.
33.     public String getValue() {
34.         value = "ClassB";
35.         return value;
36.     }
37. }

```

- A. Compilation fails.
- B. ClassC is displayed.
- C. The code runs with no output.
- D. An exception is thrown at runtime.

**Answer: D**

**QUESTION: 119**

Given:

```

11. public static void main(String[] args) {
12.     Integer i = new Integer(1) + new Integer(2);
13.     switch(i) {
14.     case 3: System.out.println("three"); break;
15.     default: System.out.println("other"); break;
16.     }
17. }

```

What is the result?

- A. three
- B. other
- C. An exception is thrown at runtime.
- D. Compilation fails because of an error on line 12.
- E. Compilation fails because of an error on line 13.
- F. Compilation fails because of an error on line 15.

**Answer:** A

**QUESTION:** 120

Given:

```

11. public static Iterator reverse(List list) {
12. Collections.reverse(list);
13. return list.iterator();
14. }
15. public static void main(String[] args) {
16. List list = new ArrayList();
17. list.add("1"); list.add("2"); list.add("3");
18. for (Object obj: reverse(list))
19. System.out.print(obj + ", ");
20. }

```

What is the result?

- A. 3, 2, 1,
- B. 1, 2, 3,
- C. Compilation fails.
- D. The code runs with no output.
- E. An exception is thrown at runtime.

**Answer:** C

**QUESTION:** 121

Given:

```

1. public class TestString3 {
2. public static void main(String[] args) {
3. // insert code here
5. System.out.println(s);
6. }
7. }

```

Which two code fragments, inserted independently at line 3, generate the output 4247?  
(Choose two.)



- A. `String s = "123456789";`  
`s = (s-"123").replace(1,3,"24") - "89";`
- B. `StringBuffer s = new StringBuffer("123456789");`  
`s.delete(0,3).replace(1,3,"24").delete(4,6);`
- C. `StringBuffer s = new StringBuffer("123456789");`  
`s.substring(3,6).delete(1,3).insert(1, "24");`
- D. `StringBuilder s = new StringBuilder("123456789");`  
`s.substring(3,6).delete(1,2).insert(1, "24");`
- E. `StringBuilder s = new StringBuilder("123456789");`  
`s.delete(0,3).delete(1,3).delete(2,5).insert(1, "24");`

**Answer:** B,E

**QUESTION:** 122

Given:

1. d is a valid, non-null Date object
  2. df is a valid, non-null DateFormat object set to the current locale
- What outputs the current locale's country name and the appropriate version of d's date?

- A. `Locale loc = Locale.getLocale();`  
`System.out.println(loc.getDisplayCountry()`  
`+ " " + df.format(d));`
- B. `Locale loc = Locale.getDefault();`  
`System.out.println(loc.getDisplayCountry()`  
`+ " " + df.format(d));`
- C. `Locale loc = Locale.getLocale();`  
`System.out.println(loc.getDisplayCountry()`  
`+ " " + df.setDateFormat(d));`
- D. `Locale loc = Locale.getDefault();`  
`System.out.println(loc.getDisplayCountry()`  
`+ " " + df.setDateFormat(d));`

**Answer:** B

**QUESTION:** 123

Given:

5. `import java.util.Date;`
6. `import java.text.DateFormat;`
21. `DateFormat df;`
22. `Date date = new Date();`
23. `// insert code here`
24. `String s = df.format(date);`

Which code fragment, inserted at line 23, allows the code to compile?

- A. `df = new DateFormat();`
- B. `df = Date.getFormat();`
- C. `df = date.getFormat();`
- D. `df = DateFormat.getFormat();`
- E. `df = DateFormat.getInstance();`

**Answer:** E

**QUESTION:** 124

Given:

1. `public class BuildStuff {`
2. `public static void main(String[] args) {`
3. `Boolean test = new Boolean(true);`
4. `Integer x = 343;`
5. `Integer y = new BuildStuff().go(test, x);`
6. `System.out.println(y);`
7. `}`
8. `int go(Boolean b, int i) {`
9. `if(b) return (i/7);`
10. `return (i/49);`
11. `}`
12. `}`

What is the result?

- A. 7
- B. 49
- C. 343
- D. Compilation fails.
- E. An exception is thrown at runtime.

**Answer:** B

**QUESTION:** 125

Given:

12. `import java.io.*;`
13. `public class Forest implements Serializable {`
14. `private Tree tree = new Tree();`
15. `public static void main(String [] args) {`
16. `Forest f = new Forest();`
17. `try {`

```

18. FileOutputStream fs = new FileOutputStream("Forest.ser");
19. ObjectOutputStream os = new ObjectOutputStream(fs);
20. os.writeObject(f); os.close();
21. } catch (Exception ex) { ex.printStackTrace(); }
22. } }
23.
24. class Tree { }

```

What is the result?

- A. Compilation fails.
- B. An exception is thrown at runtime.
- C. An instance of Forest is serialized.
- D. An instance of Forest and an instance of Tree are both serialized.

**Answer:** B

**QUESTION:** 126

Which capability exists only in java.io.FileWriter?

- A. Closing an open stream.
- B. Flushing an open stream.
- C. Writing to an open stream.
- D. Writing a line separator to an open stream.

**Answer:** D

**QUESTION:** 127

Given:

```

5. import java.io.*;
6. public class Talk {
7. public static void main(String[] args) {
8. Console c = new Console();
9. String pw;
10. System.out.print("password: ");
11. pw = c.readLine();
12. System.out.println("got " + pw);
13. }
14. }

```

If the user types the password aiko when prompted, what is the result?

- A. password:  
got
- B. password:

- got aiko  
 C. password: aiko  
 got aiko  
 D. An exception is thrown at runtime.  
 E. Compilation fails due to an error on line 8.

**Answer:** E

**QUESTION:** 128

Given:

1. public class LineUp {
2. public static void main(String[] args) {
3. double d = 12.345;
4. // insert code here
5. }
6. }

Which code fragment, inserted at line 4, produces the output | 12.345|?

- A. System.out.printf("|%7d| \n", d);
- B. System.out.printf("|%7f| \n", d);
- C. System.out.printf("|%3.7d| \n", d);
- D. System.out.printf("|%3.7f| \n", d);
- E. System.out.printf("|%7.3d| \n", d);
- F. System.out.printf("|%7.3f| \n", d);

**Answer:** F

**QUESTION:** 129

Given:

11. String test = "Test A. Test B. Test C.";
12. // insert code here
13. String[] result = test.split(regex);

Which regular expression, inserted at line 12, correctly splits test into "Test A", "Test B", and "Test C"?

- A. String regex = "";
- B. String regex = " ";
- C. String regex = ".\*";
- D. String regex = "\\s";
- E. String regex = "\\s\*";
- F. String regex = "\\w[\\.]+";

**Answer:** E

**QUESTION:** 130

Given:

1. interface A { public void aMethod(); }
2. interface B { public void bMethod(); }
3. interface C extends A,B { public void cMethod(); }
4. class D implements B {
5. public void bMethod(){}
6. }
7. class E extends D implements C {
8. public void aMethod(){}
9. public void bMethod(){}
10. public void cMethod(){}
11. }

What is the result?

- A. Compilation fails because of an error in line 3.
- B. Compilation fails because of an error in line 7.
- C. Compilation fails because of an error in line 9.
- D. If you define D e = new E(), then e.bMethod() invokes the version of bMethod() defined in Line 5.
- E. If you define D e = (D)(new E()), then e.bMethod() invokes the version of bMethod() defined in Line 5.
- F. If you define D e = (D)(new E()), then e.bMethod() invokes the version of bMethod() defined in Line 9.

**Answer:** F

**QUESTION:** 131

Click the Exhibit button.

What is the result?

```

1. public class SimpleCalc {
2.     public int value;
3.     public void calculate() { value += 7; }
4. }

And:

1. public class MultiCalc extends
SimpleCalc{
2.     public void calculate() { value -= 3; }
3.     public void calculate(int multiplier) {
4.         calculate();
5.         super.calculate();
6.         value *= multiplier;
7.     }
8.     public static void main(String[] args)
{
9.         MultiCalc calculator = new
MultiCalc();
10.        calculator.calculate(2);
11.        System.out.println("Value is: " +
calculator.value);
12.    }
13. }

```

- A. Value is: 8
- B. Compilation fails.
- C. Value is: 12
- D. Value is: -12
- E. The code runs with no output.
- F. An exception is thrown at runtime.

**Answer:** A

**QUESTION:** 132

Given:

1. public class Base {
2. public static final String FOO = "foo";
3. public static void main(String[] args) {
4. Base b = new Base();
5. Sub s = new Sub();
6. System.out.print(Base.FOO);
7. System.out.print(Sub.FOO);
8. System.out.print(b.FOO);
9. System.out.print(s.FOO);
10. System.out.print(((Base)s).FOO);
11. } }
12. class Sub extends Base {public static final String FOO="bar";}

What is the result?

- A. fofofofofofofo
- B. foobarfoobarbar
- C. foobarfofofofo
- D. foobarfoobarfoo
- E. barbarbarbarbar
- F. fofofofoobarbar
- G. fofofofoobarfoo

**Answer:** D

**QUESTION:** 133

Given:

11. class Mammal { }
- 12.
13. class Raccoon extends Mammal {
14. Mammal m = new Mammal();
15. }
- 16.

17. class BabyRaccoon extends Mammal { }  
Which four statements are true? (Choose four.)

- A. Raccoon is-a Mammal.
- B. Raccoon has-a Mammal.
- C. BabyRaccoon is-a Mammal.
- D. BabyRaccoon is-a Raccoon.
- E. BabyRaccoon has-a Mammal.
- F. BabyRaccoon is-a BabyRaccoon.

**Answer:** A,B,C,F

**QUESTION:** 134

Given:

- 10. interface A { void x(); }
- 11. class B implements A { public void x() {} public void y() {} }
- 12. class C extends B { public void x() {} }

And:

- 20. java.util.List<A> list = new java.util.ArrayList<A>();
- 21. list.add(new B());
- 22. list.add(new C());
- 23. for (A a : list) {
- 24. a.x();
- 25. a.y();
- 26. }

What is the result?

- A. The code runs with no output.
- B. An exception is thrown at runtime.
- C. Compilation fails because of an error in line 20.
- D. Compilation fails because of an error in line 21.
- E. Compilation fails because of an error in line 23.
- F. Compilation fails because of an error in line 25.

**Answer:** F

**QUESTION:** 135

Given:

- 2. public class Hi {
- 3. void m1() { }
- 4. protected void() m2 { }
- 5. }
- 6. class Lois extends Hi {

```
7. // insert code here
8. }
```

Which four code fragments, inserted independently at line 7, will compile? (Choose four.)

- A. `public void m1() { }`
- B. `protected void m1() { }`
- C. `private void m1() { }`
- D. `void m2() { }`
- E. `public void m2() { }`
- F. `protected void m2() { }`
- G. `private void m2() { }`

**Answer:** A,B,E,F

**QUESTION:** 136

Which four statements are true? (Choose four.)

- A. Has-a relationships should never be encapsulated.
- B. Has-a relationships should be implemented using inheritance.
- C. Has-a relationships can be implemented using instance variables.
- D. Is-a relationships can be implemented using the extends keyword.
- E. Is-a relationships can be implemented using the implements keyword.
- F. The relationship between Movie and Actress is an example of an is-a relationship.
- G. An array or a collection can be used to implement a one-to-many has-a relationship.

**Answer:** C,D,E,G

**QUESTION:** 137

Given:

```
10: public class Hello {
11: String title;
12: int value;
13: public Hello() {
14: title += " World";
15: }
16: public Hello(int value) {
17: this.value = value;
18: title = "Hello";
19: Hello();
20: }
21: }
and:
```



```
30: Hello c = new Hello(5);
31: System.out.println(c.title);
```

What is the result?

- A. Hello
- B. Hello World
- C. Compilation fails.
- D. Hello World 5
- E. The code runs with no output.
- F. An exception is thrown at runtime.

**Answer:** C

**QUESTION:** 138

Given:

1. package geometry;
2. public class Hypotenuse {
3. public InnerTriangle it = new InnerTriangle();
4. class InnerTriangle {
5. public int base;
6. public int height;
7. }
8. }

Which statement is true about the class of an object that can reference the variable base?

- A. It can be any class.
- B. No class has access to base.
- C. The class must belong to the geometry package.
- D. The class must be a subclass of the class Hypotenuse.

**Answer:** C

**QUESTION:** 139

Click the Exhibit button.

Given this code from Class B:

25. A a1 = new A();
26. A a2 = new A();
27. A a3 = new A();
28. System.out.println(A.getInstanceCount());

What is the result?

```

1. public class A {
2.
3.     private int counter = 0;
4.
5.     public static int getInstanceCount() {
6.         return counter;
7.     }
8.
9.     public A() {
10.        counter++;
11.    }
12.
13. }

```

- A. Compilation of class A fails.
- B. Line 28 prints the value 3 to System.out.
- C. Line 28 prints the value 1 to System.out.
- D. A runtime error occurs when line 25 executes.
- E. Compilation fails because of an error on line 28.

**Answer:** A

**QUESTION:** 140

Given:

10. interface Data { public void load(); }

11. abstract class Info { public abstract void load(); }

Which class correctly uses the Data interface and Info class?

- A. public class Employee extends Info implements Data {  
public void load() { /\*do something\*/ }  
}
- B. public class Employee implements Info extends Data {  
public void load() { /\*do something\*/ }  
}
- C. public class Employee extends Info implements Data  
public void load(){ /\*do something\*/ }  
public void Info.load(){ /\*do something\*/ }  
}
- D. public class Employee implements Info extends Data {  
public void Data.load(){ /\*do something\*/ }  
public void load(){ /\*do something\*/ }  
}
- E. public class Employee implements Info extends Data {  
public void load(){ /\*do something\*/ }  
public void Info.load(){ /\*do something\*/ }  
}
- F. public class Employee extends Info implements Data{  
public void Data.load() { /\*do something\*/ }

```
public void Info.load() { /*do something*/ }
}
```

**Answer:** A

**QUESTION:** 141

Given:

1. class Alligator {
2. public static void main(String[] args) {
3. int [][]x[] = {{1,2}, {3,4,5}, {6,7,8,9}};
4. int [][]y = x;
5. System.out.println(y[2][1]);
6. }
7. }

What is the result?

- A. 2
- B. 3
- C. 4
- D. 6
- E. 7
- F. Compilation fails.

**Answer:** E

**QUESTION:** 142

Given:

21. abstract class C1 {
22. public C1() { System.out.print(1); }
23. }
24. class C2 extends C1 {
25. public C2() { System.out.print(2); }
26. }
27. class C3 extends C2 {
28. public C3() { System.out.println(3); }
29. }
30. public class Ctest {
31. public static void main(String[] a) { new C3(); }
32. }

What is the result?

- A. 3
- B. 23

- C. 32
- D. 123
- E. 321
- F. Compilation fails.
- G. An exception is thrown at runtime.

**Answer:** D

**QUESTION:** 143

Given:

```

10. class One {
11.     public One foo() { return this; }
12. }
13. class Two extends One {
14.     public One foo() { return this; }
15. }
16. class Three extends Two {
17.     // insert method here
18. }

```

Which two methods, inserted individually, correctly complete the Three class? (Choose two.)

- A. `public void foo() {}`
- B. `public int foo() { return 3; }`
- C. `public Two foo() { return this; }`
- D. `public One foo() { return this; }`
- E. `public Object foo() { return this; }`

**Answer:** C,D

**QUESTION:** 144

Which two classes correctly implement both the `java.lang.Runnable` and the `java.lang.Cloneable` interfaces? (Choose two.)

- A. `public class Session implements Runnable, Cloneable { public void run(); public Object clone(); }`
- B. `public class Session extends Runnable, Cloneable { public void run() { /* do something */ } public Object clone() { /* make a copy */ }`

C. public class Session  
 implements Runnable, Cloneable {  
 public void run() { /\* do something \*/ }  
 public Object clone() { /\* make a copy \*/ }

D. public abstract class Session  
 implements Runnable, Cloneable {  
 public void run() { /\* do something \*/ }  
 public Object clone() { /\*make a copy \*/ }

E. public class Session  
 implements Runnable, implements Cloneable {  
 public void run() { /\* do something \*/ }  
 public Object clone() { /\* make a copy \*/ }

**Answer:** C,D

**QUESTION:** 145

Given:

11. public interface A { public void m1(); }  
 12.   
 13. class B implements A { }  
 14. class C implements A { public void m1() { } }  
 15. class D implements A { public void m1(int x) { } }  
 16. abstract class E implements A { }  
 17. abstract class F implements A { public void m1() { } }  
 18. abstract class G implements A { public void m1(int x) { } }

What is the result?

- A. Compilation succeeds.
- B. Exactly one class does NOT compile.
- C. Exactly two classes do NOT compile.
- D. Exactly four classes do NOT compile.
- E. Exactly three classes do NOT compile.

**Answer:** C

**QUESTION:** 146

Given:

10. class Line {  
 11. public class Point { public int x,y;}  
 12. public Point getPoint() { return new Point(); }  
 13. }  
 14. class Triangle {  
 15. public Triangle() {

```

16. // insert code here
17. }
18. }

```

Which code, inserted at line 16, correctly retrieves a local instance of a Point object?

- A. Point p = Line.getPoint();
- B. Line.Point p = Line.getPoint();
- C. Point p = (new Line()).getPoint();
- D. Line.Point p = (new Line()).getPoint();

**Answer:** D

**QUESTION:** 147

Given:

```

1. class TestA {
2. public void start() { System.out.println("TestA"); }
3. }
4. public class TestB extends TestA {
5. public void start() { System.out.println("TestB"); }
6. public static void main(String[] args) {
7. ((TestA)new TestB()).start();
8. }
9. }

```

What is the result?

- A. TestA
- B. TestB
- C. Compilation fails.
- D. An exception is thrown at runtime.

**Answer:** B

**QUESTION:** 148

Click the Exhibit button.

Which statement is true about the classes and interfaces in the exhibit?

```

1. public interface A {
2.     public void doSomething(String thing);
3. }

1. public class AImpl implements A {
2.     public void doSomething(String msg) { }
3. }

1. public class B {
2.     public A doit() {
3.         // more code here
4.     }
5.
6.     public String execute() {
7.         // more code here
8.     }
9. }

1. public class C extends B {
2.     public AImpl doit() {
3.         // more code here
4.     }
5.
6.     public Object execute() {
7.         // more code here
8.     }
9. }

```

- A. Compilation will succeed for all classes and interfaces.
- B. Compilation of class C will fail because of an error in line 2.
- C. Compilation of class C will fail because of an error in line 6.
- D. Compilation of class AImpl will fail because of an error in line 2.

**Answer:** C

**QUESTION:** 149

Given the following six method names:

addListener

addMouseListener

setMouseListener

deleteMouseListener

removeMouseListener

registerMouseListener

How many of these method names follow JavaBean Listener naming rules?

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

**Answer:** B

**QUESTION:** 150

Given:

```

11. public static void main(String[] args) {
12.     Object obj = new int[] { 1, 2, 3 };
13.     int[] someArray = (int[])obj;
14.     for (int i : someArray) System.out.print(i + " ");
15. }

```

What is the result?

- A. 1 2 3
- B. Compilation fails because of an error in line 12.
- C. Compilation fails because of an error in line 13.
- D. Compilation fails because of an error in line 14.
- E. A ClassCastException is thrown at runtime.

**Answer:** A

**QUESTION:** 151

Click the Exhibit button.

Which two are possible results? (Choose two.)

```

1. public class Threadsl {
2.     int x = 0;
3.     public class Runner implements Runnable
4.     {
5.         public void run() {
6.             int current = 0;
7.             for(int i = 0; i < 4; i++) {
8.                 current = x;
9.                 System.out.print(current + ' ');
10.                x = current + 2;
11.            }
12.        }
13.    }
14.    public static void main(String[] args) {
15.        new Threadsl().go();
16.    }
17.    public void go() {
18.        Runnable r1 = new Runner();
19.        new Thread(r1).start();
20.        new Thread(r1).start();
21.    }
22. }
23. }

```

- A. 0, 2, 4, 4, 6, 8, 10, 6,
- B. 0, 2, 4, 6, 8, 10, 2, 4,
- C. 0, 2, 4, 6, 8, 10, 12, 14,
- D. 0, 0, 2, 2, 4, 4, 6, 6, 8, 8, 10, 10, 12, 12, 14, 14,
- E. 0, 2, 4, 6, 8, 10, 12, 14, 0, 2, 4, 6, 8, 10, 12, 14,

**Answer:** A,C

**QUESTION:** 152

Given:



foo and bar are public references available to many other threads. foo refers to a Thread and bar is an Object. The thread foo is currently executing bar.wait(). From another thread, what provides the most reliable way to ensure that foo will stop executing wait()?

- A. foo.notify();
- B. bar.notify();
- C. foo.notifyAll();
- D. Thread.notify();
- E. bar.notifyAll();
- F. Object.notify();

**Answer:** E

**QUESTION:** 153

Given:

1. public class TestOne implements Runnable {
2. public static void main (String[] args) throws Exception {
3. Thread t = new Thread(new TestOne());
4. t.start();
5. System.out.print("Started");
6. t.join();
7. System.out.print("Complete");
8. }
9. public void run() {
10. for (int i = 0; i < 4; i++) {
11. System.out.print(i);
12. }
13. }
14. }

What can be a result?

- A. Compilation fails.
- B. An exception is thrown at runtime.
- C. The code executes and prints "StartedComplete".
- D. The code executes and prints "StartedComplete0123".
- E. The code executes and prints "Started0123Complete".

**Answer:** E

**QUESTION:** 154

Click the Exhibit button.

What is the output if the main() method is run?

Given:

```

10. public class Starter extends Thread {
11.     private int x = 2;
12.     public static void main(String[] args)
    throws Exception {
13.         new Starter().makeItSo();
14.     }
15.     public Starter() {
16.         x = 5;
17.         start();
18.     }
19.     public void makeItSo() throws
    Exception {
20.         join();
21.         x = x - 1;
22.         System.out.println(x);
23.     }
24.     public void run() { x *= 2; }
25. }

```

- A. 4
- B. 5
- C. 8
- D. 9
- E. Compilation fails.
- F. An exception is thrown at runtime.
- G. It is impossible to determine for certain.

**Answer:** D

**QUESTION:** 155

Given:

```

11. public class PingPong implements Runnable {
12.     synchronized void hit(long n) {
13.         for(int i = 1; i < 3; i++)
14.             System.out.print(n + "-" + i + " ");
15.     }
16.     public static void main(String[] args) {
17.         new Thread(new PingPong()).start();
18.         new Thread(new PingPong()).start();
19.     }
20.     public void run() {
21.         hit(Thread.currentThread().getId());
22.     }
23. }

```

Which two statements are true? (Choose two.)

- A. The output could be 8-1 7-2 8-2 7-1
- B. The output could be 7-1 7-2 8-1 6-1
- C. The output could be 8-1 7-1 7-2 8-2
- D. The output could be 8-1 8-2 7-1 7-2

**Answer:** C,D

**QUESTION:** 156

Click the Exhibit button.

What is the result?

```

1.  class Computation extends Thread {
2.
3.      private int num;
4.      private boolean isComplete;
5.      private int result;
6.
7.      public Computation(int num) { this.num
= num; }
8.
9.      public synchronized void run() {
10.         result = num * 2;
11.         isComplete = true;
12.         notify();
13.     }
14.
15.     public synchronized int getResult() {
16.         while (!isComplete) {
17.             try {
18.                 wait();
19.             } catch (InterruptedException e)
{}
20.         }
21.         return result;
22.     }
23.
24.     public static void main(String[] args)
{
25.         Computation[] computations = new
Computation[4];
26.         for (int i = 0; i <
computations.length; i++) {
27.             computations[i] = new
Computation(i);
28.             computations[i].start();
29.         }
30.         for (Computation c : computations)
31.             System.out.print(c.getResult() + "
");
32.     }
33. }

```

- A. The code will deadlock.
- B. The code may run with no output.
- C. An exception is thrown at runtime.
- D. The code may run with output "0 6".
- E. The code may run with output "2 0 6 4".
- F. The code may run with output "0 2 4 6".

**Answer:** F

**QUESTION:** 157

Which two code fragments will execute the method doStuff() in a separate thread?  
(Choose two.)

- A. new Thread() {  
public void run() { doStuff(); }