1.Given

```
public class Bunnies {
static int count = 0;
Bunnies() {
while(count < 10) new Bunnies(++count);
 }
 Bunnies(int x) { super(); }
 public static void main(String[] args) {
 new Bunnies();
 new Bunnies(count);
 System.out.println(count++);
 }
 }
```

What is the result?

A. 9
B. 10
C. 11
D. 12
E. Compilation fails.
F. An exception is thrown at runtime

2. public class Jail {

```
 private int x = 4;
 public static void main(String[] args) {
 protected int x = 6;
 new Jail().new Cell().slam();
 }
 class Cell {
 void slam(){ System.out.println("throw away key " + );
 }
 }
 }
```

Which are true? (Choose all that apply.)

A. Compilation succeeds.
B. The output is "`throw away key 4`".
C. The output is "`throw away key 6`".
D. Compilation fails due to an error on line 5.
E. Compilation fails due to an error on line 6.
F. Compilation fails due to an error on line 9.

3. Which statement(s) are true? (Choose all that apply.)

A. Coupling is the OO principle most closely associated with hiding a class's implementation details.
B. Coupling is the OO principle most closely associated with making sure classes know about other classes only through their APIs.
C. Coupling is the OO principle most closely associated with making sure a class is designed with a single, well-focused purpose.
D. Coupling is the OO principle most closely associated with allowing a single object to be seen as having many types.

4. Given:

```
boolean b = false;
int i = 7;
double d = 1.23;
0. float f = 4.56f;
1. // insert code here
```

Which line(s) of code, inserted independently at line 42, will compile and run without exception? (Choose all that apply.)

A. `System.out.printf(" %b", b);`
B. `System.out.printf(" %i", i);`
C. `System.out.format(" %d", d);`
D. `System.out.format(" %d", i);`
E. `System.out.format(" %f", f);`

```
5. public class Dec26 {
   public static void main(String[] args) {
   short a1 = 6;
   new Dec26().go(a1);
   new Dec26().go(new Integer(7));
  }
```

```
void go(Short x) { System.out.print("S "); }
void go(Long x) { System.out.print("L "); }
void go(int x) { System.out.print("i "); }
void go(Number n) { System.out.print("N "); }
}
```
What is the result?

A. `i L`
B. `i N`
C. `S L`
D. `S N`
E. Compilation fails.
F. An exception is thrown at runtime

6. Which are true? (Choose all that apply.)

A. For a specific object, it's NOT possible for `finalize()` to be invoked more than once.
B. It's possible for objects, on whom `finalize()` has been invoked by the JVM, to avoid the GC.
C. Overriding `finalize()` ensures that objects of that type will always be GCed when they become eligible.
D. The `finalize()` method is invoked only for GC-eligible objects that are NOT part of "islands of isolation."
E. For every object that the GC considers collecting, the GC remembers whether `finalize()` has been invoked for that specific object.

```
7.  public class OffRamp {
    public static void main(String[] args) {
      int [] exits = {0,0,0,0,0,0};
    int x1 = 0;
    for(int x = 0; x < 4; x++) exits[0] = x;
    for(int x = 0; x < 4; ++x) exits[1] = x;
    x1 = 0; while(x1++ < 3) exits[2] = x1;
    x1 = 0; while(++x1 < 3) exits[3] = x1;
    x1 = 0; do { exits[4] = x1; } while(x1++ < 7);
    x1 = 0; do { exits[5] = x1; } while(++x1 < 7);

 for(int x: exits)
 System.out.print(x + " ");
 } }
```

What is the result?
A. 3 3 2 2 6 6
B. 3 3 3 2 7 6
C. 3 3 3 2 7 7
D. 4 3 3 2 7 6
E. 4 3 3 2 7 7
F. Compilation fails.

```
8.  String s = "-";
    boolean b = false;
    int x = 7, y = 8;
    if((x < 8) ^ (b = true)) s += "^";
    if(!(x > 8) | ++y > 5) s += "|";
    if(++y > 9 && b == true) s += "&&";
    if(y % 8 > 1 || y / (x - 7) > 1) s += "%";
    System.out.println(s);
```

What is the result?

A. -
B. -|%
C. -^|%
D. -|&&%
E. -^|&&%
F. Compilation fails.
G. An exception is thrown at runtime.

```
9. public class Limits {

   private int x = 2;
   protected int y = 3;
 private static int m1 = 4;
 protected static int m2 = 5;
 public static void main(String[] args) {
 int x = 6; int y = 7;
 int m1 = 8; int m2 = 9;
 new Limits().new Secret().go();
}
 class Secret {
```

```
 void go() { System.out.println(x + " " + y + " " + m1
+ " " + m2); }
 } }
```

What is the result?
A. 2 3 4 5
B. 2 7 4 9
C. 6 3 8 4
D. 6 7 8 9
E. Compilation fails due to multiple errors.
F. Compilation fails due only to an error on line 11.
G. Compilation fails due only to an error on line 14.

10. Given that the for loop's syntax is correct, and given:

```
import static java.lang.System.*;
class _ {

static public void main(String[] __A_V_) {
String $ = "";
for(int x=0; ++x < __A_V_.length; ) // for loop
$ += __A_V_[x];
out.println($);
}}
```

And the command line: java _ - A .
What is the result?
A. -A
B. A.
C. -A.
D. _A.
E. _-A.
F. Compilation fails
G. An exception is thrown at runtime

11. Given two files:

```
package pkgA;
public class Foo {
```

```
 int a = 5;
 protected int b = 6;
 public int c = 7;
 }
 package pkgB;
 import pkgA.*;
 public class Baz {
 public static void main(String[] args) {
 Foo f = new Foo();
 System.out.print(" " + f.a);
 System.out.print(" " + f.b);
 System.out.println(" " + f.c);
 }
 }
```

What is the result? (Choose all that apply.)

A. 5 6 7
B. 5 followed by an exception
C. Compilation fails with an error on line 7
D. Compilation fails with an error on line 8
E. Compilation fails with an error on line 9
F. Compilation fails with an error on line 10

```
12. class Rocket {

private void blastOff() { System.out.print("bang "); }
}
public class Shuttle extends Rocket {
public static void main(String[] args) {
new Shuttle().go();
}
void go() {
blastOff();
// Rocket.blastOff(); // line A
}
private void blastOff() { System.out.print("sh-bang "); } }
```

Which are true? (Choose all that apply.)
A. As the code stands, the output is bang
B. As the code stands, the output is sh-bang
C. As the code stands, compilation fails.

D. If line A is uncommented, the output is bang bang
E. If line A is uncommented, the output is sh-bang bang
F. If line A is uncommented, compilation fails.

13.

```
    class CardBoard {
        Short story = 200;
       CardBoard go(CardBoard cb) {

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

When // do Stuff is reached, how many objects are eligible for garbage collection?

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

14. Given:

```
public class Fishing {
byte b1 = 4;
int i1 = 123456;
long L1 = (long)i1; // line A
short s2 = (short)i1; // line B
byte b2 = (byte)i1; // line C
int i2 = (int)123.456; // line D
byte b3 = b1 + 7; // line E
}
```

Which lines WILL NOT compile? (Choose all that apply.)

A. Line A
B. Line B
C. Line C
D. Line D
E. Line E

15. Given:
public class Literally {
public static void main(String[] args) {
int i1 = 1_000; // line A
int i2 = 10_00; // line B
int i3 = _10_000; // line C
int i4 = 0b101010; // line D
int i5 = 0B10_1010; // line E
int i6 = 0x2_a; // line F
}
}
Which lines WILL NOT compile? (Choose all that apply.)
A. Line A
B. Line B
C. Line C
D. Line D
E. Line E
F. Line F

16. Given:

class Mixer {
Mixer() { }
Mixer(Mixer m) { m1 = m; }
Mixer m1;
public static void main(String[] args) {
Mixer m2 = new Mixer();
Mixer m3 = new Mixer(m2); m3.go();
Mixer m4 = m3.m1; m4.go();
Mixer m5 = m2.m1; m5.go();
}
void go() { System.out.print("hi "); }
}
What is the result?

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

17. Given:

```
class Fizz {
int x = 5;
public static void main(String[] args) {
final Fizz f1 = new Fizz();
Fizz f2 = new Fizz();
Fizz f3 = FizzSwitch(f1,f2);
System.out.println((f1 == f3) + " " + (f1.x == f3.x));
}
static Fizz FizzSwitch(Fizz x, Fizz y) {
final Fizz z = x;
z.x = 6;
return z;
} }
```

What is the result?

A. true true
B. false true
C. true false
D. false false
E. Compilation fails
F. An exception is thrown at runtime

18.

```
    public class Telescope {
static int magnify = 2;
public static void main(String[] args) {
go();
}
static void go() {
int magnify = 3;
zoomIn();
```

```
}
static void zoomIn() {
magnify *= 5;
zoomMore(magnify);
System.out.println(magnify);
}
static void zoomMore(int magnify) {
magnify *= 7;
}
}
```

What is the result?
A. 2
B. 10
C. 15
D. 30
E. 70
F. 105
G. Compilation fails

19. Given:

```
class Hexy {
public static void main(String[] args) {
int i = 42;
String s = (i<40)?"life":(i>50)?"universe":"everything";
System.out.println(s);
}
}
```

What is the result?

A. null
B. life
C. universe
D. everything
E. Compilation fails
F. An exception is thrown at runtime

20. Given:

```
public class Dog {
String name;
Dog(String s) { name = s; }
public static void main(String[] args) {
Dog d1 = new Dog("Boi");
Dog d2 = new Dog("Tyri");
System.out.print((d1 == d2) + " ");
Dog d3 = new Dog("Boi");
d2 = d1;
System.out.print((d1 == d2) + " ");
System.out.print((d1 == d3) + " ");
}
}
```

What is the result?

A. true true true
B. true true false
C. false true false
D. false true true
E. false false false
F. An exception will be thrown at runtime

21.

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

What is the result?

A. 9 foo47 86foo
B. 9 foo47 4244foo
C. 9 foo425 86foo
D. 9 foo425 4244foo
E. 72 foo47 86foo

F. 72 foo47 4244foo

G. 72 foo425 86foo
H. 72 foo425 4244foo
I. Compilation fails

22. public class Cowboys {
public static void main(String[] args) {
int x = 12;
int a = 5;
int b = 7;
System.out.println(x/a + " " + x/b);
}
}
What is the result? (Choose all that apply.)

A. 2 1
B. 2 2
C. 3 1
D. 3 2
E. An exception is thrown at runtime

23.
```
public class SpecialOps {
   public static void main(String[] args) {
  String s = "";
 boolean b1 = true;
 boolean b2 = false;
 if((b2 = false) | (21%5) > 2) s += "x";
 if(b1 || (b2 == true)) s += "y";
 if(b2 == true) s += "z";
 System.out.println(s);
 }
 }
```
Which are true? (Choose all that apply.)

A. Compilation fails
B. x will be included in the output
C. y will be included in the output
D. z will be included in the output
E. An exception is thrown at runtime

24. public class Spock {
public static void main(String[] args) {
int mask = 0;
int count = 0;
if(((5<7) || (++count < 10)) | mask++ < 10) mask = mask + 1;
if((6 > 8) ^ false) mask = mask + 10;
if(!(mask > 1) && ++count > 1) mask = mask + 100;
System.out.println(mask + " " + count);
}
}
Which two are true about the value of mask and the value of count at line 10? (Choose two.)

A. mask is 0
B. mask is 1
C. mask is 2
D. mask is 10
E. mask is greater than 10
F. count is 0
G. count is greater than 0

25. public class Flipper {

public static void main(String[] args) {

String o = "-";

switch("FRED".toLowerCase().substring(1,3)) {
case "yellow":
o += "y";
case "red":
o += "r";
case "green":
o += "g";
}
System.out.println(o);
}
}
What is the result?
A. -

B. -r
C. -rg
D. Compilation fails
E. An exception is thrown at runtime