1. (1 point) What is the output of the following application?

```
public class CountEntries {
        public static int getResult ( int threshold ) {
                return threshold > 5 ? 1 : 0;
        }

        public static final void main ( String [] days ) {
                System . out . print ( getResult (5) + getResult (1)
                + getResult (0) + getResult (2) + " ") ;
        }
}
```

A. 0

B. 1

C. 0000

D. 1000

2. (1 point) What is the output of the following code? (Select 1 option.)

```
public class TestGame {
        public String runTest ( boolean spinner , boolean roller ) { if ( spinner = roller
                ) return " up ";
                else return roller ? " down " : " middle ";
        }

        public static final void main ( String [] pieces ) {
                final TestGame tester = new TestGame () ;
                System . out . println ( tester . runTest ( false , true ) ) ; }
}
```

A. up

B. middle

C. down

D. The code does not compile

3. (1 point) Fill in the blanks: The *blank* operator is true if either the operands are true, while the *blank* operator flips a boolean value.

A. +, -

B. &&, !

C. |, -

D. ||, !

4. (1 point) Given the following code snippet, what is the value of movieRating after it is executed?

```
int characters = 5;
```

```
int story = 3;
double movieRating = characters <=. 4 ? 3 : story > 1 ? 2 : 1;
```

A. 2.0

B. 3.0

C. The code does not compile but would compile if parentheses were added. D. None of the above

5. (1 point) Fill in the blanks: A switch statement can have *blank* case statement(s) and *blank* default statement(s)

```
class Pencil {}
class ColorPencil extends Pencil {
    String color ;
    ColorPencil ( String color ) { this . color = color ;}
}
```

A. at most one, at least one

B. any number of, at most one

C. at least one, any number of

D. at least one, at most one

6. (1 point) Which of the following is not a possible result of executing the following ap plication?

```
public class OutsideLogic {
  public static void main ( String ... weather ) {
    System . out . println ( weather [0] != null
                    && weather [0]. equals (" sunny ")
                    && ! false
                    ? " Go Outside " : " Stay inside ") ;
  }
}
```

A. Nothing is printed.

B. The application throws an exception at runtime.

C. Go Outside is printed.

D. Stay Inside is printed.

7. (1 point) What is the value of (5 + (!2 + 8) * 3 - 3 % 2)/2 in Java? Page

A. 2

B. 11

C. 16

D. None of the above

8. (1 point) Given the following truth table, the boolean variables w and z, and the ex pression w || z, what are the missing values in the truth table, starting with the first row?

	w = true	w = false
z = true z = false	true	false

A. false and false

B. true and false

C. true and true

D. false and true

9. (1 point) Fill in the blanks: The operators - *blank1*, *blank2*, *blank3*, and % are listed in the same or increasing level of operator.

A. +, /, *

B. –, -, *

C. ++, /, *

D. *, ++, %

10. (1 point) What is the output of the following application?

```
public class Baby {
        public static String play ( int toy , int age ) {
                final String game ;
                        if ( toy < 2)
                                game = age > 1 ? 1 : 10; // p1
                        else
                                                game = age > 3 ? " Bali " : " Swim "; // p2
                        return game ;
    }
    public static void main ( String [] variables ) {
                System . out . print ( play (5 ,2) ) ;
    }
}
```

A. Bali

B. Swim

C. The code does not compile due to p1.

D. The code does not compile due to p2

11. (1 point) What is the output of the following code? (Select 1 option.)

```
String [] os = new String [] {" Mac " , " Linux " , " Windows "}; System . out .
println ( Arrays . binarySearch ( os , " Linux ") ) ;
```

A. 0

B. 1

C. 2

D. The output is not defined

12. (1 point) What is the result of running the following program?

```
package fun ;
public class Sudoku {
    static int [][] game ;

    public static void main ( String [] args ) {
        game [3][3] = 6;
        Object [] obj = game ;
        game [3][3] = " X ";
        System . out . println ( game [3][3]) ;
    }
}
```

A. X

B. The code does not compile.

C. The code compiles but throws a NullPointerException at runtime.

D. The code compiles but throws a different exception at runtime.

13. (1 point) What is the output of the following code?

```
String [][] listing = new String [][]{ {" Book "} , {" Game ", 29.99} };
System . out . println ( listing . length + " " + listing [0]. length ) ;
```

A. 2
1

B. 2
2

C. The code does not compile.

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

14. (1 point) What is the output of the following when run as java FirstName?

```
public class FirstName {
    public static void main ( String [] names ) {
        System . out . println ( names [0]) ;
    }
}
```

A. FirstName

B. The code does not compile.

C. The code throws an ArrayIndexOutOfBoundsException

D. The code throws a NullPointerException

15. (1 point) How many lines does the following code output?

```
String [] days = new String [] {" Monday " , " Tuesday " , " Wednesday " , "
Thursday " , " Friday " , " Saturday " , " Sunday "}; for ( int i = 1; i < days . length ;
i ++ )
        System . out . println ( days [ i ]) ;
```

A. Six

B. Seven

C. The code does not compile.

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

16. (1 point) What is the output of the following when run as java Count "1 2" ?

```
public class Count {
    public static void main ( String target []) {
        System . out . println ( target . length );
    }
}
```

A. 0

B. 1

C. 2

D. The code does not compile

17. (1 point) What does the following output?

```
String [] os = new String [] {" Linux " , " Mac " , Windows }; System . out .
println ( Arrays . binarySearch ( os , " Linux ") ) ;
```

A. 0

B. 1

C. 2

D. The output is not defined

18. (1 point) Which of the following statements are true?

    1. You can always change a method signature from call(String[] arg) to call(String... arg) without a compiler error in the calling code.
    2. You can always change a method signature from call(String... arg) to call(String[] arg) without a compiler error in the existing code.

    A. 1

    B. 2

    C. Both 1 and 2

    D. Neither 1 nor 2

19. (1 point) Which of these four array references can point to an array that is different from the others?

    A. int[][][][] nums1a, nums1b;

    B. int[][][] nums2a[], nums2b;

    C. int[][] nums3a[][], nums3b[][];

    D. int[] nums4a[][][], numbs4b[][][];

20. (1 point) What is the output of the following when run as java unix.EchoFirst seed flower?

```
package unix ;
import java . util .*;
public class EchoFirst {
        public static void main ( String [] args ) {
                Arrays . sort ( args ) ;
                                String result = Arrays . binarySearch ( args , args [0])
                System . out . println ( result )
        }
}
```

    A. 0

    B. 1

    C. The code does not compile

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

21. (1 point) Complete the code so it compiles and does not cause an infinite loop.

```
t : while ( true ) {
        f : while ( true ) {
```

```
            /* INSERT CODE HERE */
        }
}
```


A. break;

B. break f;

C. break t;

D. None of the above

22. (1 point) What is the result of the following?

```
String [] nycTourLoops = new String [] {" Downtown " , " Uptown " , " Brooklyn "};
String [] times = new String [] {" Day ", " Night "};
for ( int i = 0 , j = 0; i < nycTourLoops . length )
        && j < times . length ; i ++ , j ++
{
        System . out . print ( nycTourLoops [ i ] + " " + times [ j ] + " -") ;
}
```

A. Downtown Day

B. Downtown Day-Uptown Night

C. The code does not compile.

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

23. (1 point) How many lines does the following code output?

```
import java . util .*;
public class Exams {
        public static void main ( String []) args {
                List < String > exams = Arrays . asList (" OCA " , " OCP ") ; for (
                String e1 : exams )
                        for ( String e2 : exams )
                                        System . out . println ( e1 + " " + e2 ) ;
        }
}
```

A. One

B. Four

C. The code does not compile

D. The code compiles but throws an exception at runtime

24. (1 point) Which of the following best describes the flow of execution in this for loop if beta always returns false?

```
for ( alpha ; beta ; gamma ) {
```

```
        delta ;
}
```


A. alpha

B. alpha, beta

C. alpha, beta, gamma

D. None of the above

25. (1 point) Which of the following best describes the flow of execution in this for loop if the loop body is run exactly once?

```
for ( alpha ; beta ; gamma ) {
        delta ;
}
```

A. alpha, delta, gamma, beta

B. alpha, beta, delta, gamma, beta

C. alpha, delta, gamma, alpha, beta

D. alpha, beta, delta, gamma, alpha, beta

26. (1 point) Which of the following iterates a different number of times than the others? A. for (int k=0; k<5; k++) {}

B. for (int k=1; k<=5; k++) {}

C. int k=0; do {} while(k++<5)

D. int k=0; while (k++<5) {}

27. (1 point) What is the output of the following?

```
public class Shoelaces {
        public static void main ( String [] args ) {
                String tie = null ;
                while ( tie == null );
                        tie = " shoelace ";
                        System . out . println ( tie ) ;
        }
}
```

A. null

B. shoelace

C. shoelaceshoelace

D. None of the above

28. (1 point) What is the output of the following?

```
int result = 8;
for : while ( result > 7) {
        result ++;
```



```
        do {
                result - -;
        } while ( result > 5) ;
        break for ;
}
System . out . println ( result );
```

A. 5

B. 8

C. The code does not compile.

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

29. (1 point) What is the output of the following code? (Select 1 option.)

```
boolean baloonInflated = false ;
do {
  if (! baloonInflated ) {
  baloonInflated = true ;
  System . out . print (" inflate -") ;
  }
} while ( baloonInflated ) ;
System . out . println (" done ") ;
```

A. done

B. inflate-done

C. The code does not compile

D. This is an infinite loop

30. (1 point) Which of the following can fill in the blank to have the code compile success fully?

```
package nyc ;
public class TouristBus {
        public static void main ( String ... args ) {
        String [] nycTourLoops = new String [] {" Downtown " , " Uptown " , "
             Brooklyn "};
        String [] times = new String [] {" Day ", " Night "};
                for (/* INSERT CODE HERE */ I < 1; i ++ , j ++)
```

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

A. int i=0; j=0;

B. int i=0, j=0;

C. int i=0; int j=0;

D. int i=0, int j=0;

31. (1 point) Which of the following statements are true about Java operators and state ments?

```
class MyExam {
    void question () {
        try {
            question () ;
        } catch ( StackOverflowError e ) {
            System . out . println (" caught ") ;
        }
    }
    public static void main ( String args []) {
        new MyExam () . question () ;
    }
}
```

A. Both right-hand sides of the ternary expression will be evaluated at runtime. B. A switch statement may contain at most one default statement.

C. A single if-then statement can have multiple else statements.

D. The | and || operator are interchangeable, always producing the same results at runtime.

32. (1 point) What is the output of the following?

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

A. r

B. e

C. ed

D. red

33. (1 point) Which of the following is a valid method name in

Java? A. *blank* __()

B. %run()

C. check-Activity()

D. sing3()

34. (1 point) Which of the following statements about inheritance are true?

A. Inheritance is better than using static methods for accessing data in other classes.

B. Inheritance allows a method to be overridden in a subclass, possibly changing the expected behaviour of other methods in a superclass.

C. It is possible to create a Java class that does not inherit from any

other. D. Inheritance tends to make applications more complicated.

35. (1 point) Which of the following statements about Java are true?

1. The java command uses . to separate packages.
2. Java supports functional programming.
3. Java is object oriented.
4. Java supports polymorphism.

A. 1

B. 2 and 4

C. 2, 3, and 4

D. All 4

36. (1 point) What is the output of the following code?

```
String [][] listing = new String [][] { { " Book " , "34.99" }, { " Game " , "29.99" } , { "
                                        Pen ", ".99" } };
System . out . println ( listing . length + " " + listing [0]. length ) ;
```

A. 2 2

B. 2 3

C. 3 2

D. 3 3

37. (1 point) Which of the following variable types is permitted in a switch statement?

A. Byte

B. Double

C. long

D. Object

38. (1 point) What does the following do?


```
public class Shoot {
    interface Target {
        boolean needToAim ( double angle ) ;
    }
    static void prepare ( double angle , Target t ) {
        boolean ready = t. needToAim ( angle ) ; // k1
        System . out . println ( ready ) ;
    }
    public static void main ( String [] args ) {
        prepare (45 , d = > d > 5 || d < -5) ; // k2
    }
}
```

A. It prints true

B. It prints false

C. It doesn't compile due to line k1.

D. It doesn't compile due to line k2.

39. (1 point) Given the following two classes, each in a different package, which lines allow the second class to compile when inserted independently?

```
package food ;
public class Grass {
    public static int seeds = 10;
    public static Grass getGrass () { return new Grass () ;} }
package woods ;
// INSERT CODE HERE
public class Deer {
    public void eat () {
        getGrass () ;
        System . out . print ( seeds ) ;
    }
}
```

A. import static food.Grass.getGrass;

import static food.Grass.seeds;

B. import static food.*;

C. static import food.Grass.*;

D. import food.Grass.*;

40. (1 point) What is the result of the following?

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



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

A. [Natural History, Science]

B. [Natural History, Science, Art]

C. The code does not compile.

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

41. (1 point) Which of the following substitutions will compile?

```
public class Underscores {
    public String name = " Sherrin ";
    public void massage () {
        int zip = 10017;
    }
}
```

A. Change name to _name

B. Change 10017 to _10017

C. Change 10017 to 10017_

D. Change int to _int

E. Runtime exception

42. (1 point) What is the result of the following when called as java counting.Binary?

```
package counting ;
import java . util .*;
public class Binary {
    public static void main ( String [] args ) {
```

```
        args = new String [] {"0" , "1" , "01" , "10" };
        Arrays . sort ( args ) ;
        System . out . println ( Arrays . toString ( args )) ;
    }
}
```

A. []

B. [0, 01, 1, 10]

C. [0, 01, 10, 1]

D. [0, 1, 01, 10]

43. (1 point) Fill in the blanks: Using the *blank_* and *blank_* modifiers together allows a variable to be accessed from any class, without requiring an instance variable.

A. final, package-private

B. class, static

C. protected, instance

D. public, static

44. (1 point) How many lines does the following code output?

```
import java . util .*;
public class Exams {
    public static void main ( String [] args ) {
        List < String > exams = Arrays . asList (" OCA ", " OCP ") ; for (
        String e1 : exams )
            for ( String e2 : exams )
                System . out . print ( e1 + " " + e2 ) ;
        System . out . println () ;
    }
}
```

A. One

B. Four

C. Five

D. The code does not compile.

45. (1 point) Given the application below, what data types can be inserted that would allow the code to print 3? Select 1 option.

```
public class Highway {
    public int drive ( long car ) { return 2; }
    public int drive ( double car ) { return 3; }
    public int drive ( int car ) { return 5; }
```

```
    public int drive ( short car ) { return 3; }
    public static void main ( String [] gears ) {
        /* INSERT CODE HERE */ value = 5;
        System . out . print ( new Highway () . drive ( value )) ;
    }
}
```

A. boolean

B. short

C. int

D. byte

E. long

F. float

46. (1 point) How many times does this code print true?

```
import java . time .*;
public class Equality {
    public void main ( String [] args ) {
        System . out . println ( new StringBuilder (" zelda ")
                == new StringBuilder (" zelda ") );
        System . out . println (3 == 3) ;
        System . out . println (" bart " == " bart ") ;
        System . out . println ( new int [0] == new int [0]) ;
        System . out . println ( LocalTime . now () == LocalTime . now () ); }
}
```

A. None

B. One

C. Two

D. Three

47. (1 point) What is the output of the following code? (Select 1 option.)

```
int a = 10;
for (; a <= 20; ++ a ) {
    if ( a %3 == 0) a ++; else if ( a %2 == 0) a = a *2;
    System . out . println (a ) ;
}
```

A. 11
13
15

17
19

B. 20

C. 11
14
17
20

D. 40

48. (1 point) Given the following code, which option, if used to replace /* INSERT CODE HERE */, will define an overloaded rideWave method? (Select 1 option.)

```
class Raft {
    public String rideWave () { return null ; }



    // INSERT CODE HERE
}
```

A. public String[] rideWave() return null;

B. protected void riceWave(int a)

C. private void rideWave(int value, String value2)

D. default StringBuilder rideWave (StringBuffer a) return null;

49. (1 point) Given the following code, which option, if used to replace // INSERT CODE HERE, will correctly calculate the sum of all the even numbers in the array num and store it in the variable sum? (Select 1 option.)

```
int num [] = {10 , 15 , 2 , 17};
int sum = 0;
for ( int number : num ) {
    // INSERT CODE HERE
    sum += number ;
}
```

A.
```
if ( number % 2 == 0)
        continue ;
```

B.
```
if ( number % 2 == 0)
        break ;
```

C.
```
if ( number % 2 != 0)
        continue ;
```

D.
```
if ( number % 2 != 0)
        break ;
```

50. (1 point) What is the output of the following code? (Select 1 option.)

```
class Op {
    public static void main ( String ... args ) {
        int a = 0;
        int b = 100;
        Predicate < Integer > compare = ( var ) -> var ++ == 10; if (! b ++ >
        100 && compare . test ( a )) {
            System . out . println (a + b ) ;
        }
    }
}
```

A. 100

B. 101

C. 102

D. Code fails to compile.

51. (1 point) Choose the option that meets the following specification: Create a well-encapsulated class Pencil with one instance variable model. The value of model should be accessible and modifiable outside Pencil. (Select 1 option.)

A.
```
class Pencil {
    public String model ;
}
```

B.
```
class Pencil {
    public String model ;
    public String getModel () { return model ; }
                    public void setModel ( String val ) { model = val ; }
}
```

C.
```
class Pencil {
    private String model ;
    public String getModel () { return model ; }
                    public void setModel ( String val ) { model = val ; }
}
```

D.
```
class Pencil {
    public String model ;
    private String getModel () { return model ; }
                     private void setModel ( String val ) { model = val ; }
}
```

52. (1 point) What is the output of the following code? (Select 1 option.)

```
class Phone {
    void call () {
        System . out . println (" Call - Phone ") ;
    }
}
class SmartPhone extends Phone {
    void call () {
        System . out . println (" Call - SmartPhone ") ;
    }
}
class TestPhones {
    public static void main ( String [] args ) {
        Phone phone = new Phone () ;
        Phone smartPhone = new SmartPhone () ;
        phone . call () ;
```



```
        smartPhone . call () ;
    }
}
```

A. Call-Phone
Call-Phone

B. Call-Phone
Call-SmartPhone

C. Call-Phone
null

D. null
Call-SmartPhone

53. (1 point) What is the output of the following code? (Select 1 option.)

```
class Phone {
    String keyboard = " in - built ";
}
class Tablet extends Phone {
    boolean playMovie = false ;
}
class College2 {
    public static void main ( String args []) {
        Phone phone = new Tablet () ;
        System . out . println ( phone . keyboard + ":" + phone . playMovie
     );
```

```
    }
}
```

A. in-built:false

B. in-built:true

C. null:false

D. null:true

E. Compilation error

54. (1 point) What is the output of the following code? (Select 1 option.)

```
public class Wall {
    public static void main ( String args []) {
        double area = 10.98;
        String color ;
        if ( area < 5)
            color = " red ";
        else
            color = " blue ";
```



```
        System . out . println ( color ) ;
    }
}
```

A. red

B. blue

C. No output.

D. Compilation error

55. (1 point) What is the output of the following code? (Select 1 option.)

```
class Diary {
    int pageCount = 100;
    int getPageCount () {
        return pageCount ;
    }
    void setPageCount ( int val ) {
        pageCount = val ;
    }
}
class ClassRoom {
    public static void main ( String args []) {
        System . out . println ( new Diary () . getPageCount () ) ;
        new Diary () . setPageCount (200) ;
```

```
        System . out . println ( new Diary () . getPageCount () ) ;
    }
}
```

A. 100
200

B. 100
100

C. 200
200

D. Code fails to compile

56. (1 point) How many times do you think you can shop with the following code (that is, what's the output of the following code)? (Select 1 option.)

```
class Shopping {
    public static void main ( String args []) {
        boolean bankrupt = true ;
        do System . out . println (" enjoying shopping ") ; bankrupt = false ;
        while (! bankrupt ) ;
```



```
    }
}
```

A. The code prints enjoying shopping once

B. The code prints enjoying shopping twice

C. The code prints enjoying shopping in an infinite loop

D. Code fails to compile

57. (1 point) Which of the following options are valid for defining multidimensional arrays?

A. String ejg4[][] = new String[][]{{null}, new String[]{"a","b","c"},{new String()} };

B. String ejg4[][] = new String[][]null,new String[]"a","b","c", new String();

C. String ejg5[][] = new String[][2];

D. String ejg6[][] = new String[][]"A", "B";

E. String ejg7[][] = new String[]"A", "B";

58. (1 point) What is the output of the following code? (Select 1 option.)

```
class Laptop {
    String memory = "1 GB ";
}
class Workshop {
    public static void main ( String args []) {
```

```
        Laptop life = new Laptop () ;
        repair ( life );
        System . out . println ( life . memory ) ;
    }
    public static void repair ( Laptop laptop ) {
        laptop = new Laptop () ;
        laptop . memory = "2 GB ";
    }
}
```

A. 1GB

B. 2GB

C. Compilation error

D. Runtime exception

59. (1 point) Given the following code, which option, if used to replace //INSERT CODE HERE, will enable a reference variable of type Roamable to refer to an object of the Phone class? (Select 1 option.)


```
interface Roamable {}
class Phone {}
class Tablet extends Phone implements Roamable { // INSERT
    CODE HERE
}
```

A. Roamable var = new Phone();

B. Roamable var = (Roamable)Phone();

C. Roamable var = (Roamable)new Phone();

D. Because the interface Roamable and the class Phone are unrelated, a reference variable of type Roamable can't refer to an object of the class Phone.

60. (1 point) What is the output of the following code? (Select 1 option.)

```
class Paper {
    Paper () {
        this (10) ;
        System . out . println (" Paper :0") ;
    }
    Paper ( int a ) { System . out . println (" Paper :1") ; }
}
class PostIt extends Paper {}
class TestPostIt {
```

```
    public static void main ( String [] args ) {
        Paper paper = new PostIt () ;
    }
}
```

A. Paper:1

B. Paper:0

C. Paper:0
Paper:1

D. Paper:1
Paper:0