Final Quiz No 16

1. The speed of the CPU may be measured in _____.

a. megabytes

b. gigabytes

c. megahertz

d. gigahertz

2. Which of the following is not permanent storage devices?

a. floppy disk

b. hard disk

c. flash stick

d. CD-ROM

e. main memory

3. _____ is a program that runs on a computer to manage and control a computer's activities.

a. Operating system

b. Java

c. Modem

d. Interpreter

e. Compiler

4. _____ contains predefined classes and interfaces for developing Java programs.

a. Java language specification

b. Java API

c. Java JDK

d. Java IDE

5.   The main method header is written as:

a.   public static void main(string[] args)

b.   public static void Main(String[] args)

c.   public static void main(String[] args)

d.   public static main(String[] args)

e.   public void main(String[] args)

6.   If you forget to put a closing quotation mark on a string, what kind of error will be raised?

a.   a compile error

b.   a runtime error

c.   a logic error

7.   Which of the following assignment statements is incorrect?

a.   i = j = k = 1;

b.   i = 1; j = 1; k = 1;

c.   i = 1 = j = 1 = k = 1;

d.   i == j == k == 1;

8.   How do you write 2.5 ^ 3.1 in Java?

a.   2.5 * 3.1

b.   Math.pow(2.5, 3.1)

c.   Math.pow(3.1, 2.5)

d.   2.5 ** 3.1

e.   3.1 ** 2.5

9.   To obtain the current second, use _____.

a.   System.currentTimeMillis() % 3600

b.   System.currentTimeMillis() % 60

c.   System.currentTimeMillis() / 1000 % 60

d.   System.currentTimeMillis() / 1000 / 60 % 60

e.   System.currentTimeMillis() / 1000 / 60 / 60 % 24

10. What is i printed?

```
public class Test {

  public static void main(String[] args) {

    int j = 0;

    int i = ++j + j * 5;


    System.out.println("What is i? " + i);

  }

}
```

a. 0

b. 1

c. 5

d. 6

11. What is y displayed in the following code?

```
public class Test {

  public static void main(String[] args) {

    int x = 1;

    int y = x++ + x;

    System.out.println("y is " + y);

  }

}
```

a. y is 1.

b. y is 2.

c. y is 3.

d. y is 4.

12. Suppose x = 1, y = -1, and z = 1. What is the output of the following statement? (Please indent the statement correctly first.)

```
if (x > 0)

  if (y > 0)

    System.out.println("x > 0 and y > 0");

else if (z > 0)

    System.out.println("x < 0 and z > 0");
```

a.   x > 0 and y > 0;

b.   x < 0 and z > 0;

c.   x < 0 and z < 0;

d.   no output.

13.   Which of the following is a possible output from invoking Math.random()?

a.   3.43

b.   0.5

c.   0.0

d.   1.0

14.   Which of the Boolean expressions below is incorrect?

a.   (true) && (3 => 4)

b.   !(x > 0) && (x > 0)

c.   (x > 0) || (x < 0)

d.   (x != 0) || (x = 0)

e.   (-10 < x < 0)

15.   Assume x = 4 and y = 5, which of the following is true?

a.   !(x == 4) ^ y != 5

b.   x != 4 ^ y == 5

c.   x == 5 ^ y == 4

d.   x != 5 ^ y != 4

16.   What is Math.ceil(3.6)?

a.   3.0

b.   3

c.   4.0

d.   5.0

17.   What is Math.floor(3.6)?

a.   3.0

b.   3

c.   4

d.   5.0

18. To check whether a char variable ch is an uppercase letter, you write _____.

a.   (ch >= 'A' && ch >= 'Z')

b.   (ch >= 'A' && ch <= 'Z')

c.   (ch >= 'A' || ch <= 'Z')

d.   ('A' <= ch <= 'Z')

19.   _____ returns true.

a.   "peter".compareToIgnoreCase("Peter")

b.   "peter".compareToIgnoreCase("peter")

c.   "peter".equalsIgnoreCase("Peter")

d.   "peter".equalsIgnoreCase("peter")

e.   "peter".equals("peter")

20. The _____ method parses a string s to an int value.

a.   integer.parseInt(s);

b.   Integer.parseInt(s);

c.   integer.parseInteger(s);

d.   Integer.parseInteger(s);

21.   How many times will the following code print "Welcome to Java"?

int count = 0;

while (count++ < 10) {

  System.out.println("Welcome to Java");

}

a.   8

b.   9

c.   10

d.   11

e.   0

22.   What will be displayed when the following code is executed?

int number = 6;

while (number > 0) {

  number -= 3;

  System.out.print(number + " ");

}

a.   6 3 0

b.   6 3

c.   3 0

d.   3 0 -3

e.   0 -3

23.   How many times will the following code print "Welcome to Java"?

int count = 0;

do {

  System.out.println("Welcome to Java");

  count++;

} while (count < 10);

a.   8

b.   9

c.   10

d.   11

e.   0

24.   Is the following loop correct?

for (; ;);

a.   Yes

b.   No

25.   What is y after the following for loop statement is executed?

int y = 0;

for (int i = 0; i < 10; ++i) {

  y += 1;

}

A.   9

B.   10

C.   11

D.   12

26.   What is the value of balance after the following code is executed?

int balance = 10;

while (balance >= 1) {

  if (balance < 9)

    break;

  balance = balance - 9;

}

A.   -1

B.   0

C.   1

D.   2

27.   All Java applications must have a method _____.

a.   public static Main(String[] args)

b.   public static Main(String args[])

c.   public static void main(String[] args)

d.   public void main(String[] args)

e.   public static main(String[] args)

28.   Does the return statement in the following method cause compile errors?

public static void main(String[] args) {

  int max = 0;

  if (max != 0)

    System.out.println(max);

  else

    return;

}

a.   Yes

b.   No

29. A variable defined inside a method is referred to as _____.

a. a global variable

b. a method variable

c. a block variable

d. a local variable

30.   Which correctly creates an array of five empty Strings?

a.   String[] a = new String [5];

b.   String[] a = {"", "", "", "", ""};

c.   String[5] a;

d.   String[ ] a = new String [5]; for (int i = 0; i < 5; a[i++] = null);

31.   Which code fragment would correctly identify the number of arguments passed via the command line to a Java application, excluding the name of the class that is being invoked?

a.   int count = args.length;

b.   int count = args.length - 1;

c.   int count = 0; while (args[count] != null) count ++;

d.   int count=0; while (!(args[count].equals(""))) count ++;

32. Assume int[] scores = {1, 20, 30, 40, 50}, what is the output of System.out.println(java.util.Arrays.toString(scores))?

a.   {1, 20, 30, 40, 50}

b.   [1, 20, 30, 40, 50]

c.   {1 20 30 40 50}

d.   [1 20 30 40 50]

33. Use the selectionSort method presented in this section to answer this question. What is list1 after executing the following statements?

double[] list1 = {3.1, 3.1, 2.5, 6.4};

selectionSort(list1);

a.   list1 is 3.1, 3.1, 2.5, 6.4

b.   list1 is 2.5, 3.1, 3.1, 6.4

c.   list1 is 6.4, 3.1, 3.1, 2.5

d.   list1 is 3.1, 2.5, 3.1, 6.4

34. The reverse method is defined in this section. What is list1 after executing the following statements?

int[] list1 = {1, 2, 3, 4, 5, 6};

int[] list2 = reverse(list1);

a. list1 is 1 2 3 4 5 6

b. list1 is 6 5 4 3 2 1

c. list1 is 0 0 0 0 0 0

d. list1 is 6 6 6 6 6 6

35. Analyze the following code:

```
public class Test1 {
  public static void main(String[] args) {
    xMethod(new double[]{3, 3});
    xMethod(new double[5]);
    xMethod(new double[3]{1, 2, 3});
  }
  public static void xMethod(double[] a) {
    System.out.println(a.length);
  }
}
```

}

a. The program has a compile error because xMethod(new double[]{3, 3}) is incorrect.

b. The program has a compile error because xMethod(new double[5]) is incorrect.

c. The program has a compile error because xMethod(new double[3]{1, 2, 3}) is incorrect.

d. The program has a runtime error because a is null.

36. Analyze the following code:

```java
public class Test {
  public static void main(String[] args) {
    int[] x = {1, 2, 3, 4};
    int[] y = x;
    x = new int[2];
    for (int i = 0; i < x.length; i++)
      System.out.print(x[i] + " ");
  }
}
```

a.   The program displays 1 2 3 4

b.   The program displays 0 0

c.   The program displays 0 0 3 4

d.   The program displays 0 0 0 0

37. Analyze the following code:

```java
public class Test {
  public static void main(String[] args) {
    double[] x = {2.5, 3, 4};
    for (double value: x)
      System.out.print(value + " ");
  }
}
```

a.   The program displays 2.5, 3, 4

b.   The program displays 2.5 3 4

c.   The program displays 2.5 3.0 4.0

d.   The program displays 2.5, 3.0 4.0

e. The program has a syntax error because value is undefined.

38.   Which of the following statements are correct?

a.   char[][][] charArray = new char[2][2][];

b.   char[2][2][] charArray = {'a', 'b'};

c.   char[][][] charArray = {{'a', 'b'}, {'c', 'd'}, {'e', 'f'}};

d.   char[][][] charArray = {{{'a', 'b'}, {'c', 'd'}, {'e', 'f'}}};

39. Analyze the following code:

public class Test {

 public static void main(String[] args) {

   boolean[][] x = new boolean[3][];

   x[0] = new boolean[1]; x[1] = new boolean[2];

   x[2] = new boolean[3];

    System.out.println("x[2][2] is " + x[2][2]);

 }

}

a. The program has a compile error because new boolean[3][] is wrong.

b. The program has a runtime error because x[2][2] is null.

c. The program runs and displays x[2][2] is null.

d. The program runs and displays x[2][2] is true.

e. The program runs and displays x[2][2] is false.

40.   Which of the following statements are correct?

a.   char[][] charArray = {'a', 'b'};

b.   char[2][2] charArray = {{'a', 'b'}, {'c', 'd'}};

c.   char[2][] charArray = {{'a', 'b'}, {'c', 'd'}};

d.   char[][] charArray = {{'a', 'b'}, {'c', 'd'}};

41. Analyze the following code:

class Circle {

 private double radius;

   public Circle(double radius) {

   radius = radius;

 }

}

a.   The program has a compile error because it does not have a main method.

b.   The program will compile, but you cannot create an object of Circle with a specified radius. The object will always have radius 0.

c.   The program has a compile error because you cannot assign radius to radius.

d.   The program does not compile because Circle does not have a default constructor.

42. What is the output for the third statement in the main method?

```
public class Foo {

  static int i = 0;

  static int j = 0;


  public static void main(String[] args) {

    int i = 2;

    int k = 3;

    {

      int j = 3;

      System.out.println("i + j is " + i + j);

    }


    k = i + j;

    System.out.println("k is " + k);

    System.out.println("j is " + j);

  }
}
```

a.   j is 0

b.   j is 1

c.   j is 2

d.   j is 3

43. Which of the following statements are true about an immutable object?

a. The contents of an immutable object cannot be modified.

b. All properties of an immutable object must be private.

c. All properties of an immutable object must be of primitive types.

d. A readable object type property in an immutable object must also be immutable.

e. An immutable object contains no mutator methods.

44. Assume java.util.Date[] dates = new java.util.Date[10], which of the following statements are true?

a. dates is null.

b. dates[0] is null.

c. dates = new java.util.Date[5] is fine, which assigns a new array to dates.

d. dates = new Date() is fine, which creates a new Date object and assigns to dates.

45. When invoking a method with an object argument, _____ is passed.

a. the contents of the object

b. a copy of the object

c. the reference of the object

d. the object is copied, then the reference of the copied object

46.   To prevent a class from being instantiated, _____

a.   don't use any modifiers on the constructor.

b.   use the public modifier on the constructor.

c.   use the private modifier on the constructor.

d.   use the static modifier on the constructor.

47.   To declare a constant MAX_LENGTH as a member of the class, you write

a.   final static MAX_LENGTH = 99.98;

b.   final static float MAX_LENGTH = 99.98;

c.   static double MAX_LENGTH = 99.98;

d.   final double MAX_LENGTH = 99.98;

e.   final static double MAX_LENGTH = 99.98;

48. To obtain the distance between the points (40, 50) and (5.5, 4.4), use _____.

a. distance(40, 50, 5.5, 4.4)

b. new Point2D(40, 50).distance(5.5, 4.4)

c. new Point2D(40, 50).distance(new Point2D(5.5, 4.4))

d. new Point2D(5.5, 4.4).distance(40, 50)

e. new Point2D(5.5, 4.4).distance(new Point2D(40, 50))

49.   Which of the following statements are correct?

a. A reference variable is an object.

b. A reference variable references to an object.

c. A data field in a class must be of a primitive type.

d. A data field in a class can be of an object type.

50.   The default value for data field of a boolean type, numeric type, object type is _____, respectively.

a. true, 1, Null

b. false, 0, null

c. true, 0, null

d. true, 1, null

e. false, 1, null

51. The StringBuilder methods _____ not only change the contents of a string builder, but also returns a reference to the string builder.

a. delete

b. append

c. insert

d. reverse

e. replace

52. What is displayed by the following code?

String[] tokens = "A,B;C;D".split("[,;]");

for (int i = 0; i < tokens.length; i++)

  System.out.print(tokens[i] + " ");

a.   A,B;C;D

b.   A B C D

c.   A B C;D

d.   A B;C;D

53. What is displayed by the following statement?

System.out.println("Java is neat".replaceAll("is", "AAA"));

a.   JavaAAAneat

b.   JavaAAA neat

c.   Java AAA neat

d.   Java AAAneat

54. _____ returns a string.

a. String.valueOf(123)

b. String.valueOf(12.53)

c. String.valueOf(false)

d. String.valueOf(new char[]{'a', 'b', 'c'})

55. Assume s is "ABCABC", the method _____ returns a new string "aBCaBC".

a. s.toLowerCase(s)

b. s.toLowerCase()

c. s.replace('A', 'a')

d. s.replace('a', 'A')

e. s.replace("ABCABC", "aBCaBC")

56.   Which of the following is the correct statement to return a string from an array a of characters?

a. toString(a)

b. new String(a)

c. convertToString(a)

d. String.toString(a)

57. Suppose s1 and s2 are two strings. Which of the following statements or expressions are incorrect?

a.   String s = new String("new string");

b.   String s3 = s1 + s2

c.   s1 >= s2

d.   int i = s1.length

e.   s1.charAt(0) = '5'

58. Which of the following classes are immutable?

a.   Integer

b.   Double

c.   BigInteger

d.   BigDecimal

e. String

59. Analyze the following code:

```java
public class Test {
 public static void main(String[] args) {
   new B();
 }
}


class A {
 int i = 7;


 public A() {
   setI(20);
   System.out.println("i from A is " + i);
 }


 public void setI(int i) {
   this.i = 2 * i;
 }
}
class B extends A {
 public B() {
   // System.out.println("i from B is " + i);
 }
  @Override
 public void setI(int i) {
   this.i = 3 * i;
 }
}
```

a. The constructor of class A is not called.

b. The constructor of class A is called and it displays "i from A is 7".

c. The constructor of class A is called and it displays "i from A is 40".

d. The constructor of class A is called and it displays "i from A is 60".

60. What is the output of the following code?

```java
public class Test {
  public static void main(String[] args) {
    new Person().printPerson();
    new Student().printPerson();
  }
}
class Student extends Person {
  @Override
  public String getInfo() {
    return "Student";
  }
}
class Person {
  public String getInfo() {
    return "Person";
  }

  public void printPerson() {
    System.out.println(getInfo());
  }
}
```

a. Person Person

b. Person Student

c. Student Student

d. Student Person

61. Which of the following are Java keywords?

a. instanceOf

b. instanceof

c. cast

d. casting

62.   Assume Cylinder is a subtype of Circle. Analyze the following code:

Cylinder cy = new Cylinder(1, 1);

Circle c = cy;

a.   The code has a compile error.

b.   The code has a runtime error.

c.   The code is fine.

63.   Assume Cylinder is a subtype of Circle. Analyze the following code:

Circle c = new Circle (5);

Cylinder c = cy;

a.   The code has a compile error.

b.   The code has a runtime error.

c.   The code is fine.

64. An instance of _____ describes the errors caused by your program and external circumstances. These errors can be caught and handled by your program.

a. RuntimeException

b. Exception

c. Error

d. Throwable

e. NumberFormatException

65. Instances of _____ are unchecked exceptions.

a. RuntimeException

b. Exception

c. Error

d. Throwable

e. NumberFormatException

66. What exception type does the following program throw?

public class Test {

 public static void main(String[] args) {

  int[] list = new int[5];

  System.out.println(list[5]);

 }

}

a. ArithmeticException

b. ArrayIndexOutOfBoundsException

c. StringIndexOutOfBoundsException

d. ClassCastException

e. No exception

67. What exception type does the following program throw?

public class Test {

  public static void main(String[] args) {

    Object o = new Object();

    String d = (String)o;

  }

}

a. ArithmeticException

b. ArrayIndexOutOfBoundsException

c. StringIndexOutOfBoundsException

d. ClassCastException

e. No exception

68. Which of the following statements are true?

a. You use the keyword throws to declare exceptions in the method heading.

b. A method may declare to throw multiple exceptions.

c. To throw an exception, use the key word throw.

d. If a checked exception occurs in a method, it must be either caught or declared to be thrown from the method.

69. Polymorphism means _____.

a. that data fields should be declared private

b. that a class can extend another class

c. that a variable of supertype can refer to a subtype object

d. that a class can contain another class

70. Encapsulation means _____.

a. that data fields should be declared private

b. that a class can extend another class

c. that a variable of supertype can refer to a subtype object

d. that a class can contain another class

71. Inheritance means _____.

a. that data fields should be declared private

b. that a class can extend another class

c. that a variable of supertype can refer to a subtype object

d. that a class can contain another class

72. Composition means _____.

a. that data fields should be declared private

a. that data fields should be declared private

b. that a class extends another class

c. that a variable of supertype refers to a subtype object

d. that a class contains a data field that references another object

73. Which of the following statements are true?

a. Inheritance models the is-a relationship between two classes.

b. A strong is-a relationship describes a direct inheritance relationship between two classes.

c. A weak is-a relationship describes that a class has certain properties.

d. A strong is-a relationship can be represented using class inheritance.

e. A weak is-a relationship can be represented using interfaces.

74. Analyze the following code.

public class Test {

 public static void main(String[] args) {

   java.util.Date x = new java.util.Date();

   java.util.Date y = x.clone();

   System.out.println(x = y);

 }

}

a. A java.util.Date object is not cloneable.

b. x = y in System.out.println(x = y) causes a compile error because you cannot have an assignment statement inside a statement.

c. x = y in System.out.println(x = y) causes a runtime error because you cannot have an assignment statement inside a statement.

d. The program has a compile error because the return type of the clone() method is java.lang.Object.

75. Which of the following statements are true?

a. All files are stored in binary format. So, all files are essentially binary files.

b. Text I/O is built upon binary I/O to provide a level of abstraction for character encoding and decoding.

c. Encoding and decoding are automatically performed by text I/O.

d. For binary input, you need to know exactly how data were written in order to read them in correct type and order.

76. Which of the following statements is true?

a. A static variable is not serialized.

b. A transient variable is not serialized.

c. An object must be an instance of Serializable for it to be serialized.

d. The methods in an object are serialized.

77. With which I/O class can you append or update a file?

a. RandomAccessFile()

b. OutputStream()

c. DataOutputStream()

d. None of the above

78.   Which of the following statements are true?

a. Recursive methods run faster than non-recursive methods.

b. Recursive methods usually take more memory space than non-recursive methods.

c. A recursive method can always be replaced by a non-recursive method.

d. In some cases, however, using recursion enables you to give a natural, straightforward, simple solution to a program that would otherwise be difficult to solve.

79.   Analyze the following two programs:

A:

```
public class Test {
  public static void main(String[] args) {
    xMethod(5);
  }
  public static void xMethod(int length) {
```

```java
    if (length > 1) {

      System.out.print((length - 1) + " ");

      xMethod(length - 1);

    }

  }

}
```

B:

```java
public class Test {

  public static void main(String[] args) {

    xMethod(5);

  }

  public static void xMethod(int length) {

    while (length > 1) {

      System.out.print((length - 1) + " ");

      xMethod(length - 1);

    }

  }

}
```

a.   The two programs produce the same output 5 4 3 2 1.

b.   The two programs produce the same output 1 2 3 4 5.

c.   The two programs produce the same output 4 3 2 1.

d.   The two programs produce the same output 1 2 3 4.

e.   Program A produces the output 4 3 2 1 and Program B prints 4 3 2 1 1 1 .... 1 infinitely.

80. Which of the following statements are true?

a. The Fibonacci series begins with 0 and 1, and each subsequent number is the sum of the preceding two numbers in the series.

b. The Fibonacci series begins with 1 and 1, and each subsequent number is the sum of the preceding two numbers in the series.

c. The Fibonacci series begins with 1 and 2, and each subsequent number is the sum of the preceding two numbers in the series.

d. The Fibonacci series begins with 2 and 3, and each subsequent number is the sum of the preceding two numbers in the series.