Last Name: _____   First Name: _____

Multiple Choice   *(40 items @ 2.5 point each)* <u>Select the letter in front of the most correct answer, and mark your scantron accordingly.</u>

1. When an object is created, space is reserved in memory for that object's _____.
   - a. constructor
   - b. instance data
   - c. methods
   - d. class header
   - e. local variables

2. In which of the following lines of code is a variable declared but not initialized?
   - a. `int var1 = 3;`
   - b. `int var2;`
   - c. `var2 = 1 / 6;`
   - d. `var1 = var2;`
   - e. `Integer i = new Integer(var1);`

3. Which of the following lines contains a narrowing conversion?
   - a. `double value1 = Double.parseDouble(str);`
   - b. `int value = "Exam 1!".length();`
   - c. `double value3 = (int) 3.5;`
   - d. `int value4 = 4;`
   - e. both b and c

4. Fill in the blank in the Javadoc comment below:
   ```
   /**
    * Adds interest to the account balance.
    *
    * @_____  The interest.
    */
   public void addInterest(double rate)
   ```
   - a. param
   - b. return
   - c. param rate
   - d. return rate
   - e. param args

5. Which of the following is executed first when you run your Java application?
   - a. The constructor of your class
   - b. The main method of your class
   - c. The toString method of your class
   - d. All static methods of a class
   - e. None of the above

6. A private method is referred to as a(n) _____ method, while a public method is referred to as a(n) _____ method.
    a. static, class
    b. class, static
    c. support, service
    d. static, service
    e. service, static

7. Which of the following best describes the variable num?
    ```
    Integer num = new Integer(10);
    ```
    a. a double type variable
    b. a reference type variable
    c. a primitive type variable
    d. a static variable
    e. a constant field

8. Which of the following (if any) is not a valid variable name?
    a. old
    b. new
    c. total$
    d. an_input
    e. All of the above are valid variable names.

9. Which of the following represents the Java interpreter on your computer and is responsible for running your Java program?
    a. jGRASP.exe
    b. java.exe
    c. javac.exe
    d. run.exe
    e. Any IDE can act as a Java interpreter.

10. Suppose that your program produces an incorrect answer as a result of integer division. What type of error is produced?
    a. a style error
    b. a compile-time error
    c. a run-time error
    d. a logical error
    e. All of the above are valid answers.

11. Which of the following instance fields violates encapsulation?
    a. `public static final int XMAX = 10;`
    b. `private static final int POINTS = 1052;`
    c. `private boolean isIt = true;`
    d. `private double weight;`
    e. None of the above violates encapsulation.

12. Which of the following lines of code **invokes** a method?

     a. `private double yCoord;`
     b. `public static void main(String[] args)`
     c. `System.out.println("Invalid input");`
     d. `public class PaymentMethod`
     e. b and d only

13. What is printed to standard output after the following line of code is executed?
`System.out.println("The answer is: " + 24 + 25);`

     a. The answer is: 49
     b. The answer is: 50
     c. The answer is: 2425
     d. The answer is: +49
     e. The answer is: +50

14. Given the Java API specification below, what is the parameter type of the matches method?

boolean **matches**(String regex)	
	Tells whether or not this string matches the given regular expression.

     a. boolean
     b. matches
     c. String
     d. regex
     e. void

15. A _____ class diagram shows the relationships between classes in a project.

     a. JDK
     b. IDE
     c. UML
     d. ASCII
     e. None of the above.

16. A(n) _____ method changes the _____ of the object.

     a. accessor, state
     b. state, accessor
     c. mutator, behaviors
     d. static, state
     e. mutator, state

17. On which of the following line is the toString() method of the client object invoked implicitly?

     a. `System.out.print(client);`
     b. `Client client = new Client("Adrian Beltre");`
     c. `String name = client.getName();`
     d. `Double.parseDouble(client.getNumber());`
     e. None of the above invokes a toString method implicitly.

18. Consider the following method header:

    ```
    public boolean spend(double amountSpent)
    ```

    Complete the code below to call the spend method:

    ```
    _____ x = customer.spend(userInput);
    ```

    a. public
    b. double
    c. void
    d. int
    e. None of the above.

19. Which of the following provides the object equivalent of a primitive type?

    a. Wrapper class
    b. System class
    c. The Scanner class
    d. Math class
    e. There is no object equivalent of a primitive type

20. What is the value of y after the following code is executed?

    ```
    double y = 7 - 3 / 3 - 2;
    ```

    a. -2.0
    b. -1.0
    c. 0.0
    d. 2.0
    e. 4.0

21. What is the value of guests after the following code is executed?

    ```
    int guests = 0;
    guests++;
    ```

    a. -1
    b. 0
    c. 1
    d. 2
    e. 3

22. Which of the following consecutively executed lines of code performs conversion via promotion?

    a. `int number = 6;`
    b. `double value = 2.3, actual = number;`
    c. `System.out.println((double)number / value);`
    d. `actual = number / value;`
    e. `value = value / 2.0;`

23. Which of the following lines of code modifies the String object referenced by the variable strInput?

    a. `int total = strInput.length();`
    b. `return strInput.replace("a", "@");`
    c. `System.out.println("Input: " + strInput + "\n");`
    d. `double x = Double.parseDouble(strInput);`
    e. None of the above.

24. The statement below provides a program access to the _____ class in the _____ package.

    `import java.io.PrintWriter;`

    a. io, java
    b. java.io, PrintWriter
    c. Writer, java.io.Print
    d. java.io.Print, Writer
    e. PrintWriter, java.io

25. In which of the following lines is a static method invoked?

    a. `int letters = strInput.length();`
    b. `double x = Double.parseDouble("2.3");`
    c. `cc.setHeight(6);`
    d. `public static final int ACE = 1;`
    e. All of the above invoke static methods.

26. Which of the following lines would print the String referenced by the variable eventName in double quotes?

    a. `System.out.println("\"eventName\"");`
    b. `System.out.println(eventName);`
    c. `System.out.println("eventName");`
    d. `System.out.println("\""+eventName+"\"");`
    e. `System.out.println("+eventName+");`

27. Which of the following lines of code contains a reference variable?

    a. `public static final int PLAYER1 = 0;`
    b. `Scanner scan = new Scanner(System.in);`
    c. `private int score;`
    d. `public void setVolume(double volumeIn)`
    e. `converted = (double)num;`

28. Which of the following lines directly invokes a constructor?
    a. `String output = new String("Red Sox");`
    b. `public static void main(String[] args)`
    c. `module.construct();`
    d. `public class PaymentMethod`
    e. None of the above

29. Which of the following is a valid constructor header for the Product class?
    a. `public int Product(String name, double price)`
    b. `public void Product(String name, double price)`
    c. `public Construct(String name)`
    d. `public Product()`
    e. Both a and b are valid

30. Below four variables are declared, of which, three are initialized in the declaration. Which of the variables cannot be set to a new value in a subsequent assignment statement?
    a. `private double length;`
    b. `public static final double CEILING = 65;`
    c. `String bestTeam = "Patriots";`
    d. `private boolean isIt = true;`
    e. All of the above variables length, CEILING, bestTeam, and isIt can be reassigned values.

31. Which of the following is a character literal?
    a. `private byte num;`
    b. `'Y'`
    c. The Character class
    d. `import java.io.*;`
    e. `char a;`

32. What is the value of x after the following code is executed?
    `int x = 14 % 6;`
    a. 0
    b. 2.333333
    c. 20
    d. 1
    e. 2

Use the following code segment to answer questions 33 through 40. Questions 33 through 36 are fill-in-the-blank with the choices to the right of the blank in caption boxes.

```
1        public class CreditCard
2        {
3           private String customer;
4           private double balance, interest;
5
6            public CreditCard(String name, double rate){
7              customer = name;
8              interest = rate;
9            }
10
11           public double spend(_____ amountSpent){
12              balance += amountSpent;
13              return balance;
14            }
15
16           public void chargeInterest(){
17
18                   _____ balance + (balance * interest);
19            }
20
21           public _____ getBalance(){
22              return balance;
23            }
24
25           public void payBalance(double amountPaid){
26              balance = balance - amountPaid;
27            }
28
29           public String toString(){
30
31              _____ "Name: " + customer + "\n"
32                    + "Interest rate: " + interest + "%\n"
33                    + "Balance: $" + balance + "\n";
34              return output;
35            }
36        }
```

33. a. boolean
    b. static
    c. void
    d. double
    e. None of the above

34. a. return
    b. balance =
    c. private
    d. output =
    e. None of the above

35. a. return
    b. static
    c. void
    d. boolean
    e. None of the above

36. a. return
    b. static
    c. output =
    d. String output =
    e. None of the above

37. Which of the following variables can be accessed by all methods in the CreditCard class?
    a.   amountPaid
    b.   customer
    c.   spend
    d.   output
    e.   rate

38. Which of the following is a formal parameter?
    a. customer
    b. String
    c. double
    d. output
    e. None of the above

39. Which of the following lines of code correctly instantiates a CreditCard object?
    a. `CreditCard cc = CreditCard.instantiate();`
    b. `CreditCard cc = new CreditCard(myName, ccRate);`
    c. `CreditCard = new CreditCard(String myName, double ccRate);`
    d. `CreditCard cc = new CreditCard(34, "Jane");`
    e. `CreditCard cc = new CreditCard(String myName, double rate);`

40. Which of the following lines of code correctly invokes the payBalance method?
    a. `CreditCard.payBalance();`
    b. `CreditCard.payBalance(double amt);`
    c. `CreditCard.payBalance(amt);`
    d. `cc.payBalance(amt);`
    e. `cc.payBalance(double amt)`