

**CSE110 – Principles of programming**  
**Chapter 8 A First Look at Classes**

**Name:**

**ID:**

**Program:**

**6.1 Multiple Choice Questions**

1) One or more objects may be created from a(n):

- A) field
- B) class
- C) method
- D) instance

2) Class objects normally have \_\_\_\_\_ that perform useful operations on their data, but primitive variables do not.

- A) fields
- B) instances
- C) methods
- D) relationships

3) In the cookie cutter metaphor, think of the \_\_\_\_\_ as a cookie cutter and \_\_\_\_\_ as the cookies.

- A) object; classes
- B) class; objects
- C) class; fields
- D) attribute; methods

4) Which of the following are classes from the Java API?

- A) Scanner
- B) Random
- C) PrintWriter
- D) All of the above

5) When you are working with a \_\_\_\_\_, you are using a storage location that holds a piece of data.

- A) primitive variable
- B) reference variable
- C) numeric literal
- D) binary number

6) What is stored by a reference variable?

- A) A binary encoded decimal
- B) A memory address
- C) An object
- D) A string

7) Most programming languages that are in use today are:

- A) procedural
- B) logic
- C) object-oriented
- D) functional

8) Java allows you to create objects of this class in the same way you would create primitive variables.

- A) Random
- B) String
- C) PrintWriter
- D) Scanner

9) A UML diagram does not contain:

- A) the class name
- B) the method names
- C) the field names
- D) object names

10) Data hiding, which means that critical data stored inside the object is protected from code outside the object, is accomplished in Java by:

- A) using the `public` access specifier on the class methods
- B) using the `private` access specifier on the class methods
- C) using the `private` access specifier on the class definition
- D) using the `private` access specifier on the class fields

11) For the following code, which statement is NOT true?

```
public class Sphere
{
    private double radius;
    public double x;
    private double y;
    private double z;
}
```

- A) `x` is available to code that is written outside the `Circle` class.
- B) `radius` is not available to code written outside the `Circle` class.
- C) `radius`, `x`, `y`, and `z` are called members of the `Circle` class.
- D) `z` is available to code that is written outside the `Circle` class.

12) You should not define a class field that is dependent upon the values of other class fields:

- A) in order to avoid having stale data
- B) because it is redundant
- C) because it should be defined in another class
- D) in order to keep it current

13) What does the following UML diagram entry mean?

```
+ setHeight(h : double) : void
```

- A) this is a public attribute named `Height` and is a `double` data type
- B) this is a private method with no parameters and returns a `double` data type
- C) this is a private attribute named `Height` and is a `double` data type
- D) this is a public method with a parameter of data type `double` and does not return a value

14) Methods that operate on an object's fields are called:

- A) instance variables
- B) instance methods
- C) public methods
- D) private methods

15) The scope of a `private` instance field is:

- A) the instance methods of the same class
- B) inside the class, but not inside any method
- C) inside the parentheses of a method header
- D) the method in which they are defined

16) A constructor:

- A) always accepts two arguments
- B) has return type of `void`
- C) has the same name as the class
- D) always has an access specifier of `private`

17) Which of the following statements will create a reference, `str`, to the `String`, "Hello, World"?

- A) `String str = "Hello, World";`
- B) `string str = "Hello, World";`
- C) `String str = new "Hello, World";`
- D) `str = "Hello, World";`

18) Two or more methods in a class may have the same name as long as:

- A) they have different return types
- B) they have different parameter lists
- C) they have different return types, but the same parameter list
- D) you cannot have two methods with the same name

19) Given the following code, what will be the value of `finalAmount` when it is displayed?

```
public class Order
{
    private int orderNum;
    private double orderAmount;
    private double orderDiscount;

    public Order(int orderNumber, double orderAmt,
                double orderDisc)
    {
        orderNum = orderNumber;
        orderAmount = orderAmt;
        orderDiscount = orderDisc;
    }
    public int getOrderAmount()
    {
        return orderAmount;
    }
    public int getOrderDisc()
    {
        return orderDisc;
    }
}

public class CustomerOrder
{
    public static void main(String[] args)
    {
        int ordNum = 1234;
        double ordAmount = 580.00;
        double discountPer = .1;
        Order order;
        double finalAmount = order.getOrderAmount() -
            order.getOrderAmount() * order.getOrderDisc();
        System.out.printf("Final order amount = $%,.2f\n",
                           finalAmount);
    }
}
```

- A) 528.00
- B) 580.00
- C) There is no value because the constructor has an error.
- D) There is no value because the object `order` has not been created.

20) A class specifies the \_\_\_\_\_ and \_\_\_\_\_ that a particular type of object has.

- A) relationships; methods
- B) fields; object names
- C) fields; methods
- D) relationships; object names

21) This refers to the combining of data and code into a single object.

- A) Data hiding
- B) Abstraction
- C) Object
- D) Encapsulation

22) Another term for an object of a class is:

- A) access specifier
- B) instance
- C) member
- D) method

23) In your textbook the general layout of a UML diagram is a box that is divided into three sections. The top section has the \_\_\_\_\_; the middle section holds \_\_\_\_\_; the bottom section holds \_\_\_\_\_.

- A) class name; attributes or fields; methods
- B) class name; object name; methods
- C) object name; attributes or fields; methods
- D) object name; methods; attributes or fields

24) For the following code, which statement is NOT true?

```
public class Circle
{
    private double radius;
    public double x;
    private double y;
}
```

- A) x is available to code that is written outside the Circle class.
- B) radius is not available to code written outside the Circle class.
- C) radius, x, and y are called members of the Circle class.
- D) y is available to code that is written outside the Circle class.

25) It is common practice in object-oriented programming to make all of a class's:

- A) methods private
- B) fields private
- C) fields public
- D) fields and methods public

26) After the header, the body of the method appears inside a set of:

- A) brackets, [ ]
- B) parentheses, ( )
- C) braces, { }
- D) double quotes, ""

27) In UML diagrams, this symbol indicates that a member is private:

- A) \*
- B) #
- C) -
- D) +

28) In UML diagrams, this symbol indicates that a member is public.

- A) /
- B) @
- C) -
- D) +

29) In a UML diagram to indicate the data type of a variable enter:

- A) the variable name followed by the data type
- B) the variable name followed by a colon and the data type
- C) the class name followed by the variable name followed by the data type
- D) the data type followed by the variable name

30) When an object is created, the attributes associated with the object are called:

- A) instance fields
- B) instance methods
- C) fixed attributes
- D) class instances

31) When an object is passed as an argument to a method, what is passed into the method's parameter variable?

- A) the class name
- B) the object's memory address
- C) the values for each field
- D) the method names

32) A constructor is a method that:

- A) returns an object of the class.
- B) never receives any arguments.
- C) with the name *ClassName*.constructor.
- D) performs initialization or setup operations.

33) The scope of a public instance field is:

- A) only the class in which it is defined
- B) inside the class, but not inside any method
- C) inside the parentheses of a method header
- D) the instance methods and methods outside the class

34) Which of the following statements will create a reference, `str`, to the string "Hello, world"?

(1) `String str = new String("Hello, world");`

(2) `String str = "Hello, world";`

- A) 1
- B) 2
- C) 1 and 2
- D) neither 1 or 2

35) Overloading means multiple methods in the same class:

- A) have the same name, but different return types
- B) have different names, but the same parameter list
- C) have the same name, but different parameter lists
- D) perform the same function

36) Given the following code, what will be the value of `finalAmount` when it is displayed?

```
public class Order
{
    private int orderNum;
    private double orderAmount;
    private double orderDiscount;

    public Order(int orderNumber, double orderAmt,
                 double orderDisc)
    {
        orderNum = orderNumber;
        orderAmount = orderAmt;
        orderDiscount = orderDisc;
    }

    public double finalOrderTotal()
    {
        return orderAmount - orderAmount *
               orderDiscount;
    }
}

public class CustomerOrder
{
    public static void main(String[] args)
    {
        Order order;
        int orderNumber = 1234;
        double orderAmt = 580.00;
        double orderDisc = .1;
        order = new Order(orderNumber, orderAmt, orderDisc);
        double finalAmount = order.finalOrderTotal();
        System.out.printf("Final order amount = $%,.2f\n",
                           finalAmount);
    }
}
```

- A) 528.00
- B) 580.00
- C) 522.00
- D) There is no value because the object `order` has not been created.

37) A class's responsibilities include:

- A) the things a class is responsible for doing
- B) the things a class is responsible for knowing
- C) both A and B
- D) neither A nor B



38) Instance methods do not have this key word in their headers:

- A) public
- B) static
- C) private
- D) protected

39) Which of the following is NOT involved in finding the classes when developing an object-oriented application?

- A) Describe the problem domain.
- B) Identify all the nouns.
- C) Write the code.
- D) Refine the list of nouns to include only those that are relevant to the problem.

40) This is a group of related classes.

- A) archive
- B) package
- C) collection
- D) attachment

41) Quite often you have to use this statement to make a group of classes available to a program.

- A) import
- B) use
- C) link
- D) assume

42) Look at the following statement.

```
import java.util.Scanner;
```

This is an example of

- A) a wildcard import
- B) an explicit import
- C) unconditional import
- D) conditional import

43) Look at the following statement.

```
import java.util.*;
```

This is an example of:

- A) a wildcard import
- B) an explicit import
- C) unconditional import
- D) conditional import

44) The following package is automatically imported into all Java programs.

- A) `java.java`
- B) `java.default`
- C) `java.util`
- D) `java.lang`

## 6.2 True/False Questions

- 1) An object can store data.
- 2) A class is not an object, but a description of an object.
- 3) An access specifier indicates how the class may be accessed.
- 4) A method that stores a value in a class's field or in some other way changes the value of a field is known as a mutator method.
- 5) Instance methods should be declared static.
- 6) A constructor is a method that is automatically called when an object is created.
- 7) Shadowing is the term used to describe where the field name is hidden by the name of a local or parameter variable.
- 8) The `public` access specifier for a field indicates that the attribute may not be accessed by statements outside the class.
- 9) A method that gets a value from a class's field but does not change it is known as a mutator method.
- 10) Instance methods do not have the key word `static` in their headers.
- 11) The term "default constructor" is applied to the first constructor written by the author of a class.
- 12) When a local variable in an instance method has the same name as an instance field, the instance field hides the local variable.
- 13) The term "no-arg constructor" is applied to any constructor that does not accept arguments.
- 14) The `java.lang` package is automatically imported into all Java programs.