OO Design I Midterm Exam Online

Due Mar 13 at 11:59pm	**Points** 80	**Questions** 70	**Time Limit** None

Instructions

You may utilize notes, documentation, books, tools, and information posted on the web to answer these questions. You may not obtain the answers from another person. You are to work independently in answering these questions. You are not to work in groups. You are not ask others how they answered the questions. You are not to discuss the questions with other students. The answers are to be the product of your work and research utilizing information sources that do not involve asking another person for the answers to the questions.

There are questions on the exam where you are expected to find the answer by looking at documentation or searching for information to determine the answer.

No late submissions of the final exam will be accepted. If the exam is submitted late it will receive 0 points. This is necessary because the answers to the final exam will be posted after the due date so they can be used to prepare for the in-class portion of the midterm exam.

Attempt History

	Attempt	**Time**	**Score**
LATEST	[Attempt 1](#)	44 minutes	80 out of 80

⚠ Correct answers will be available on Mar 14 at 12am.

Score for this quiz: **80** out of 80
Submitted Mar 9 at 1:31pm
This attempt took 44 minutes.

Question 1	**1 / 1 pts**

Consider the evaluation of the expression (a != null && a.equals(b))
Which of the following is true?

○ The order of evaluation is not deterministic.

○ a.equals(b) is evaluated and then a != null is evaluated.

◉ a != null is evaluated and if true a.equals(b) is evaluated.

○ a.equals(b) is first evaluated and if it is false a != null is skipped.

Question 2

1 / 1 pts

Instance variables can be accessed in a static method in a class in Java.
(E.g. static methods have access to "this" in Java.)
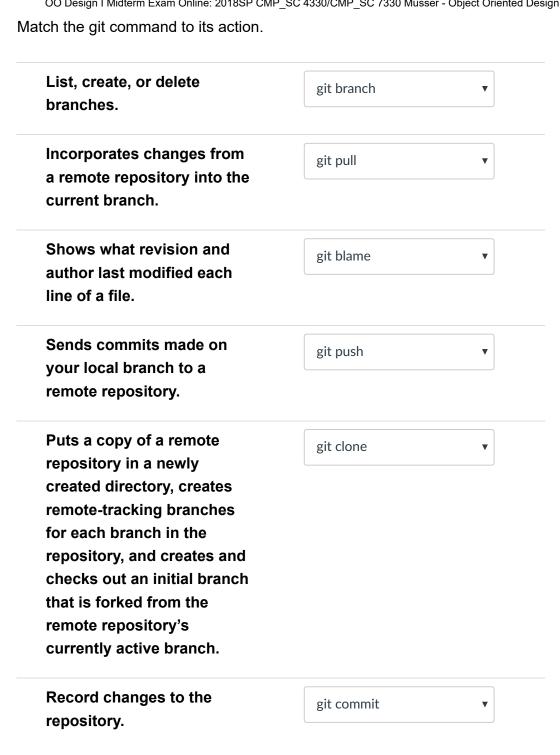
○ True

◉ False

Question 3

1 / 1 pts

With regard to "finally", which of the following is true?

○ A finally block is executed before the catch block but after the try block.

○ A finally block is executed, only after the catch block is executed.

◉ A finally block is executed whether an exception is thrown or not.

○ A finally block is executed, only if an exception occurs.

○ None of the above.

Question 4

6 / 6 pts

Match the git command to its action.

List, create, or delete branches.	git branch ▾
Incorporates changes from a remote repository into the current branch.	git pull ▾
Shows what revision and author last modified each line of a file.	git blame ▾
Sends commits made on your local branch to a remote repository.	git push ▾
Puts a copy of a remote repository in a newly created directory, creates remote-tracking branches for each branch in the repository, and creates and checks out an initial branch that is forked from the remote repository's currently active branch.	git clone ▾
Record changes to the repository.	git commit ▾

Question 5

1 / 1 pts

When an instance of a class (an object) is specified as a parameter to a method a duplicate copy of the object is passed to the method.

○ True

◉ False

Question 6   1 / 1 pts

The wrapping up of data and functions into a single unit is called
_____.

○ Abstraction

○ Data Hiding

◉ Encapsulation

○ Message Parsing

○ Polymorphism

Question 7   1 / 1 pts

The following classes are defined in a program:

```
class BaseClass {
    public void act() {
        System.out.println("act() in BaseClass called");
    }
}
class DerivedClass extends BaseClass {
    public void act() {
        System.out.println("act() in DerivedClass called");
```

```
  }
}
```

What will be displayed when the following code is executed?

```
BaseClass b = new DerivedClass();
b.act();
```

- ○ act() in BaseClass is called

- ◉ act() in DerivedClass is called

- ○ act() in DerivedClass then act() in BaseClass is called

- ○ act() in BaseClass then act() in DerivedClass is called

Question 8   1 / 1 pts

Which of the following can the 'super' keyword be used to do in Java?

- ○ Call a subclass method from the superclass.

- ◉ Call a superclass method from a subclass.

- ○ Call a subclass method or access a subclass field from a superclass.

- ○ None of the above.

Question 9   1 / 1 pts

Which one of the following is not true?

- ○ A class containing abstract methods has to be an abstract class.

○ Abstract methods must be implemented in the derived class if the derived
class is concrete.

⦿ An abstract class cannot have non-abstract methods.

○ A class must be abstract if it contains an abstract method.

Question 10   1 / 1 pts

Java supports the implementation of multiple interfaces on a class.

⦿ True

○ False

Question 11   1 / 1 pts

Java supports multiple inheritance.

○ True

⦿ False

Question 12   1 / 1 pts

Inheritance exhibits the "IS-A" relationship while composition exhibits the
_____ relationship.

○ EXTENDS

○ IS-FROM

◉ HAS-A

○ IMPLEMENTATION

○ WOULDNT-WANT-TO-BE-A

Question 13   1 / 1 pts

public interface InterfaceX { void methodX(); }

public interface InterfaceY extends InterfaceX { void methodY(); }

public abstract class ClassY implements InterfaceY
{

  @Override
  public void methodX() {}

  @Override
  public void methodY() {}
}

public class ClassZ extends ClassY
{
  public ClassZ() {}
  ... <methods not shown>
}

 Which of the following statements causes a syntax error?

○ InterfaceX obj = new ClassZ();

○ ClassZ obj = new ClassZ();

◉ InterfaceY obj = new ClassY();

ClassY obj = new ClassZ();

Question 14

1 / 1 pts

If Checkers extends Board and implements Playable, and

Board b = new Board();
Checkers c = new Checkers(8, 8);

are declared, which of the following statements will cause a syntax error?

○ b = c

◉ c = new Board();

○ b = new Checkers(8, 8);

○ Playable p = new Checkers(8, 8);

○ All of the above will compile with no errors.

Question 15

1 / 1 pts

A and B are interfaces
E and F are classes
X is an abstract class

Which of the following can be true if creating a class F?

○ class F implements B,X { }

◉ class F implements A { }

○ class F extends A,E { }

○ class F extends B { }

○ class F implements B,E { }

Question 16   1 / 1 pts

Which of the following statements is correct?

⦿ Object a = 5.42;

○ String a = new Object();

○ String a = (String)(new Object());

○ Integer x = new Float(3);

Question 17   1 / 1 pts

Suppose ArrayList<ChessPiece> list = new ArrayList<>( ). Which of the
following operations is correct?

○ list.add("Pawn");

○ list.add(new String("Pawn"));

⦿ list.add(new ChessPiece("Pawn"));

○ list.add(ChessPiece);

Question 18   1 / 1 pts

Which of the following is a marker interface in Java?

☐ Comparable

☐ Initializable

☐ Insufferable

☑ Serializable

Question 19   1 / 1 pts

java.util.ArrayList<String> names = new java.util.ArrayList<>();
names.add("Joshua");
java.util.ArrayList<String> people = names;
names.add("Richard");
people.add("Dale");
System.out.println(people);

○ [Joshua]

○ [Joshua, Dale]

○ [Joshua, Richard]

◉ [Joshua, Richard, Dale]

○ [Joshua, Dale, Richard]

Question 20   1 / 1 pts

What is the difference between 'double' and 'Double' in Java?

○ There is no difference. They are the same thing.

○ double is an interface and Double is a class.

◉ double is a primitive data type and Double is a class.

○

double and Double are both classes. double is 32 bits and Double is 64 bits.

Question 21

1 / 1 pts

What is the name of the method used to initiate execution of a thread?

○ init()

◉ start()

○ run()

○ resume()

Question 22

1 / 1 pts

Which method must be defined by a class implementing the java.lang.Runnable interface and serves as the path of execution for all threads?

○ call()

○ handle()

◉ run()

○ start()

○ thread()

Question 23   1 / 1 pts

public class ThingToDo implements Runnable {

    public void run() {

    // some code goes here

    }

}

Which of these will create and start a thread?

○ new Runnable(ThingToDo).start();

○ new Thread(ThingToDo).run();

○ new ThingToDo().start();

◉ new Thread(new ThingToDo()).start();

Question 24   1 / 1 pts

What method in the Thread class do you call to make the current thread cease executing for a specified amount of time?

○ pause()

◉ sleep()

○ stop()

○ halt()

Question 25   1 / 1 pts

The code in a thread that is different than the main/UI thread should directly manipulate user interface elements?

○ True

◉ False

Question 26   1 / 1 pts

The == operator can be used to compare the values of two Strings in Java and the result is true if the Strings contain the same characters in the same order.

○ True

◉ False

Question 27   1 / 1 pts

Objects of a subclass can be assigned to a super class reference.

◉ True

○ False

Question 28

1 / 1 pts

Each method in a class must have a unique name.

- ○ True

- ● False

Question 29

1 / 1 pts

In Java, all interface methods must be declared as public when implemented in a class.

- ● True

- ○ False

Question 30

1 / 1 pts

Java does not allow a method with the same signature in a subclass as a method in the super class.

- ○ True

- ● False

Question 31

1 / 1 pts

Which of the following methods is available on every object instance in Java?

- ⦿ equals()

- ○ println()

- ○ thread()

- ○ start()

- ○ getPackage()

Question 32   1 / 1 pts

In Java, what access modifier do you place on a method to restrict access to that method by only other members of the same class in a class that is protected?

- ○ final

- ○ static

- ⦿ private

- ○ protected

- ○ volatile

Question 33   1 / 1 pts

Which class contains the method for checking whether a file exists?

    ⦿ File

    ○ PrintWriter

    ○ Scanner

    ○ System

Question 34

1 / 1 pts

To create an InputStream to read from a file on a Web server, you use the method _____ in the URL class.

    ○ getInputStream();

    ○ obtainInputStream();

    ⦿ openStream();

    ○ connectStream();

Question 35

1 / 1 pts

Every javafx.event.Event object has the _____ method.

    ⦿ getSource()

    ○ getActionCommand()

    ○ getTimeStamp()

    ○ getWhen()

○ getKeyChar()

Question 36   1 / 1 pts

Suppose Apple is an abstract class, RedDeliciousApple is a concrete
subclass of Apple, and both Apple and RedDeliciousApple have a
constructor with no arguments. Which of the following is correct?

○ Apple a = new Apple();

◉ Apple a = new RedDeliciousApple();

○ RedDeliciousApple r = new Apple();

○ RedDeliciousApple r = (RedDeliciousApple)(new Apple());

Question 37   1 / 1 pts

In Java, which of the following is used to declare a class named Mapper that
uses two generic types?

○ public class Mapper<K><V> { ... }

○ public class Mapper(K->V) { ... }

○ public class Mapper(K,V) { ... }

◉ public class Mapper<K,V> { ... }

Question 38   1 / 1 pts

Which of the following statements is true?

○ A subclass is a subset of a superclass.

◉ A subclass is usually extended to contain more functions and more detailed information than its superclass.

○ A subclass is an interface to a superclass.

○ A superclass is always abstract.

Question 39   1 / 1 pts

Which of the following statements is true?

○ To override a method, the method must be defined in the subclass using the same signature and compatible return type as in its superclass.

○ Overloading a method is to provide more than one method with the same name but with different signatures to distinguish them.

○ It is a compilation error if two methods differ only in return type in the same class.

○ A private method cannot be overridden. If a method defined in a subclass is private in its superclass, the two methods are completely unrelated.

◉ All of the above are true.

○ None of the above are true.

Question 40

1 / 1 pts

What is object serialization?

○ Placing a series of objects in an ordered array.

◉ Converting an object into a stream of bytes in order to store or transmit the object.

○ Reading data from a network connection.

○ Using a thread to carry out a series of operations in the background.

Question 41

1 / 1 pts

Composition means _____.

○ Data fields should be declared private.

○ A class extends another class.

○ A variable of supertype refers to a subtype object.

◉ A class contains a data field that references another object.

Question 42

1 / 1 pts

Which of the following classes cannot be extended in Java?

◯ class Pet { }

◉ final class Pet { }

◯ abstract class Pet { }

◯ class Pet { protected Pet();}

Question 43

1 / 1 pts

What is the Factory OO design pattern?

◯ A method that fills an ArrayList based on a data source.

◯ Saving object data to files using serialization.

◉
Using a method to create objects without having to specify the exact class of
the object to be produced.

◯ Using a thread to construct objects based on a timer tick.

Question 44

1 / 1 pts

The Model-View-Controller design pattern is an example of the use of what
design principle?

◯ open/closed principle

◯ don't repeat yourself

◉ separation of concerns

code reuse

Question 45

1 / 1 pts

The MoSCoW method helps designers and developers do which of the following?

○ simplify designs

○ communicate architecture

◉ prioritize requirements

○ limit code replication

Question 46

1 / 1 pts

Lambda expressions in Java are based on which of the following?

○ bounded generics

○ function pointers

○ objects that contain closures

◉ instances of classes that implement functional interfaces

Question 47

1 / 1 pts

Binary serialization in Java has which of the following problems?

○   modifications to classes can make previous serializations unusable

○   results are not human readable

○   objects are not easily transferred between different systems

⦿   all of the above

Question 48   6 / 6 pts

Match the OO design pattern to the type of pattern: creational, behavioral, structural. See: **http://www.oodesign.com/**   **(http://www.oodesign.com/)** **(http://www.oodesign.com/)**

Singleton	Creational ▾
Observer	Behavioral ▾
Iterator	Behavioral ▾
Factory	Creational ▾
Adapter	Structural ▾
Object Pool	Creational ▾

Question 49   1 / 1 pts

XML, JSON, and YAML are which of the following?

○ Programming languages

◉ Formats for representing object data

○ OO design principles

○ Procedures for parsing

Question 50   1 / 1 pts

The process of serializing an object is also called which of the following?

○ composition

◉ marshalling

○ parsing

○ swizzling

Question 51   1 / 1 pts

The JavaFX ChangeListener is a functional interface.

◉ True

○ False

Question 52   1 / 1 pts

An instance of a JavaFX ChangeListener **cannot** be represented by a lambda expression.

○ True

◉ False

Question 53   1 / 1 pts

Which of the following best describes an inner class?

○ A lambda expression.

○ A class that cannot be subclassed.

○ A class that contains all of its own methods.

◉ A class defined inside of another class.

○ A class that can introspect its own state.

Question 54   1 / 1 pts

Which answer is an acceptable way to re-write the following Java code:

```
this.gridPane.widthProperty().addListener(new ChangeListener<Number>() {
    @Override
    public void changed(ObservableValue<? extends Number> observable,
Number oldValue, final Number newValue) {
        drawGrid();
    }
});
```

○

```
this.gridPane.widthProperty().addListener(new MyChangeListener extends
ChangeListener<Number>() {
    @Override
    public void changed(ObservableValue<? extends Number> observable,
Number oldValue, final Number newValue) {
    drawGrid();
    }
});
```

◉

```
this.gridPane.widthProperty().addListener((ObservableValue<? extends
Number> observable, Number oldValue, final Number newValue) -> {
    drawGrid();
});
```

○
```
this.gridPane.widthProperty().addListener({
    drawGrid();
});
```

○
```
this.gridPane.widthProperty().addListener() {
    drawGrid();
};
```

○ None of the above

Question 55   1 / 1 pts

A lambda expression can be assigned to a variable in Java.

◉ True

○ False

Question 56   1 / 1 pts

The M in MVC stands for Model. What one of the primary purposes of the model in an application design that uses MVC?

○ To represent the architecture of the app.

◉ To hold the application state and data.

○ To specify the layout of the UML used to describe the app.

○ To make software engineers apply appropriate interfaces.

Question 57   1 / 1 pts

In Java you can only implement one interface but you can extend multiple classes.

○ True

◉ False

Question 58   1 / 1 pts

A "well formed" XML document is not the same as a "valid" XML document.

◉ True

○ False

Question 59   1 / 1 pts

In JSON, {} represent what?

○ an array

○ an attribute

○ a code block

◉ an object

Question 60

1 / 1 pts

The Swift programming language supports optional types. What is an optional type?

○ A user created type.

◉ A type that can be set to no value (nil).

○ A type that has optional parameters.

○ A type that is no one of the language provided types.

Question 61

1 / 1 pts

This OO concept is also known as information hiding. It conceals the functional details of a class from code that use objects instantiated from the class.

○ Abstraction

◉ Encapsulation

○ Inheritance

○ Polymorphism

Question 62   1 / 1 pts

Why is a constructor / initializer useful?

○ Because it allows us to delay the creation of an object until it is actually used.

◉ Because it ensures that objects are properly initialized.

○ Because it allows the type of object being created to be transformed to a different type.

○ Because it is the only place were object field data can be set.

Question 63   1 / 1 pts

Integer and int types can be used completely interchangeably in Java?

○ True

◉ False

Question 64   1 / 1 pts

Which of the following means that a piece of code is thread safe?

○
The code is kept from being run in a thread. It is safe from threaded execution.

◉
The code only manipulates shared data structures in a manner that guarantees safe execution by multiple threads at the same time.

○ It is code that doesn't utilize recursion.

○
It is code in a thread that doesn't consume too much processing time causing other threads to slow down.

Question 65   1 / 1 pts

The JavaFX UI is thread safe.

○ Yes

◉ No

Question 66   1 / 1 pts

Which exception is thrown by the parseInt() method of Integer class in Java?

○ Exception

○ InvalidFormatException

○ InvalidValueException

◉ NumberFormatException

○ None of these

Question 67

1 / 1 pts

What is the purpose of a marker interface in Java?

○ to create placeholder for extending another interface

◉ to indicate something to the compiler or the Java Virtual Machine (JVM)

○ to flag a class as one that produces errors

○ to mark a class as inheritable

Question 68

1 / 1 pts

Which of the following is NOT a valid JSON object?

◉
["name": "Sally", "age": 20, "phone": "555-123-4567", "email": "sally@xyz.com"]

○
{ "name": "Sally", "age": 20, "phone": "555-123-4567", "email": "sally@xyz.com" }

Question 69

1 / 1 pts

Which of the following is NOT valid JSON?

○

[{ "color": "orange", "value" : "#ffa500" }, { "color": "coral", "value" : "#ff7f50" }, { "color": "goldenrod", "value" : "#daa520" }]

○

{ "id" : 25, "title" : "California wildfires: Nearly 200,000 flee as new blaze spreads", "url" : "http://www.bbc.com/news/world-us-canada-42263237" }

○ [3.00, 9.75, 11.7]

◉ { "baseball", "basketball", "golf", "football", "soccer", "tennis" }

Question 70   1 / 1 pts

What is the following?

```
<message>
   <to>Sarah Derby</to>
   <from>Kathy Martin</from>
   <heading>Coffee?</heading>
   <body>Would you like to grab a coffee tomorrow?</body>
</message>
```

○ AJAX

○ JAVA

○ JSON

○ YAML

◉ XML

Quiz Score: **80** out of 80