

Java Midterm Part A

Due No due date**Points** 610**Questions** 74**Time Limit** 30 Minutes

Instructions

Exam Instructions: TIME LIMITED, AUTO-SUBMIT, AUTO-GRADING YOUR VIDEO MUST BE ON
READ CAREFULLY AND ANSWER EACH QUESTION ONE AT A TIME!

Read each question carefully and select the best choice or choices which answer that question.
Answer all questions within the time allotted.

Some questions have more than one correct answer. There is no credit for a partially answered question.

You may use your Eclipse IDE (or other instructor approved IDE).

You may not use any other materials UNLESS OTHERWISE INSTRUCTED BY THE INSTRUCTOR OR T.A.

You may NOT have any discussions with anyone except the instructor or T.A..

Taking this exam outside of these parameters will result in disqualification and a grade of zero.

Answer all questions.

EXAM WILL AUTO SUBMIT AFTER ALLOTTED TIME EXPIRES.

Attempt History

	Attempt	Time	Score
LATEST	<u>Attempt 1</u>	30 minutes	589.17 out of 610

Score for this quiz: **589.17** out of 610

Submitted Nov 1, 2021 at 2:44pm

This attempt took 30 minutes.

Question 1

20 / 20 pts

/**

*

* CAREFULLY EXAMINE the code fragment given below for
CORRECT Object Oriented Design,

then Fill IN THE BLANK with EITHER:

the LINE NUMBER of the java statement which needs to be corrected

OR the words:

NO ERRORS:

```
*
1      List < Item > list = new ArrayList<>(
2          Arrays.asList(
3              new Electronics(1,"Sharp HDTV",999.99),
4              new Electronics(2,"HP Laptop",399.99),
5              new Electronics(3,"Apple iPad mini", 499.99)
6          ));
7      System.out.println(list.size() + " Electronic items in list.");
8      for (Electronics e : list) {
9          System.out.print(e + " ");
10     }
11     System.out.println();

*
*/
```

Correct!

Correct Answers

8

That is correct!

Question 2

10 / 10 pts

FILL IN THE BLANK with the LINE NUMBER of the INCORRECT (Compiler Error) line of java code:

1. List<String> names1 = new ArrayList<>();

2. List<> names2 = new ArrayList<String>();
3. ArrayList<String> names3 = new ArrayList<String>();

Correct!

2

Correct Answers

2

That is correct!

Question 3**10 / 10 pts**

Select the answer which best describes the following three lines of java code:

1. List numbers1 = new ArrayList<>();
2. List numbers2 = new ArrayList();
3. ArrayList numbers3 = new ArrayList();

☐ Java statement 3 is correct.☐ Java statement 2 is correct.☒ None of the three Java statements are correct.☐ Java statement 1 is correct.☐ All three Java statements are correct.**Correct!**

Yes, that is correct!

Question 4**10 / 10 pts**

When instantiating a HashMap class for an associative container, BEST PRACTICE is to define the variable as type ____.

Correct!

Map

Incorrect Answers

java.util.Map

Map<>

Map

Yes, that is correct!

Question 5

10 / 10 pts

When instantiating an ArrayList class for a sequential container, BEST PRACTICE is to define the variable as type ____.

Correct!

List

Incorrect Answers

List

List<>

java.util.List

Yes, that is correct!

Question 6

5 / 5 pts

A Java interface specifies one or more methods and instance variables to be used in your class.

Correct!☐ True☒ False

Yes, that is correct!

Question 7**6.67 / 10 pts**

In Java, you accomplish abstraction (i.e. data and functionality hiding to hide design details) by use of:

☐ none of these are correct.☒ Abstract class☐ Factory Design Pattern☒ API**Correct!****Incorrect Answer****Correct!****Question 8****6.67 / 10 pts**

In Java, you accomplish abstraction (i.e. data and functionality hiding to hide design details) by use of:

☒ Interface☒ Superclass☐ none of these are correct.☐ Factory Design Pattern**Correct!****Correct!****Incorrect Answer**

Question 9**10 / 10 pts**

If my multithreaded code required a sequential container, I would use the _____ class.

Correct!**Incorrect Answers**

Vector

Vector<>

java.util.Vector

Yes, that is correct!

Question 10**10 / 10 pts**

What is never required for polymorphism but should always be in the derived class implementing polymorphism?

Correct!**Incorrect Answers**

@Override annotation

Override

override keyword

@Override

Yes, you are correct!

Question 11**10 / 10 pts**

If my class needs to execute code on an additional thread, I would use the .

Answer 1:

Correct!

Runnable

Incorrect Answer

interface

Answer 2:

Correct!

interface

Incorrect Answer

Runnable

Yes, that is correct!

Question 12

10 / 10 pts

What is another name for class method?

Correct!

☒ operation

Correct!

☒ function

☐ characteristic

☐ script

That is correct!

Question 13

6.67 / 10 pts

In Java, you accomplish abstraction (i.e. data and functionality hiding to hide design details) by use of:

Correct!

☒ Abstract class

Incorrect Answer

☐ private helper member functions

☐ none of these answers are correct.

Correct!

☒ Interface

Question 14

10 / 10 pts

What comprises the API of a class?

☐ All methods in class.

☒ None of these answers are correct.

☐ All static methods in class.

☐ All data in class

Correct!

Yes, that is correct!

Question 15

10 / 10 pts

What another name used for class data?

☐ all of these

☒ Field

Correct!

Correct!☐ text☐ form☒ Attribute

That is correct!

Question 16**10 / 10 pts**

In UML, another term for Inheritance is ____.

Correct!

Generalization

Correct Answers

Generalization

Yes, that is correct!

Question 17**10 / 10 pts**

What is another name for Superclass?

☐ all of these.**Correct!**☒ Parent class**Correct!**☒ Base class☐ General class

That is correct!

Question 18

10 / 10 pts

What is another name for subclass?

☐ general class

☒ Child class

☒ Derived class

☐ all of these

That is correct!

Correct!

Correct!

Question 19

5 / 5 pts

field is a Java primitive type.

☐ True

☒ False

You are correct!

Correct!

Question 20**5 / 5 pts**

int is a Java primitive type.

Correct!☒ True☐ False

You are correct!

Question 21**5 / 5 pts**

String is a Java primitive type.

Correct!☐ True☒ False

You are correct!

Question 22**5 / 5 pts**

byte is a Java primitive type.

Correct!☒ True☐ False

You are correct!

Question 23**5 / 5 pts**

boolean is a Java primitive type.

Correct!☒ True☐ False

You are correct!

Question 24**5 / 5 pts**

float is a Java primitive type.

Correct!☒ True☐ False

You are correct!

Question 25**5 / 5 pts**

double is a Java primitive type.

Correct!

☒ True

☐ False

You are correct!

Question 26

5 / 5 pts

Integer is a Java primitive type.

☐ True

Correct!

☒ False

You are correct!

Question 27

5 / 5 pts

long is a Java primitive type.

Correct!

☒ True

☐ False

You are correct!

Question 28**5 / 5 pts**

bit is a Java primitive type.

☐ True

☒ False

Correct!

You are correct!

Question 29**5 / 5 pts**

short is a Java primitive type.

☒ True

☐ False

Correct!

You are correct!

Question 30**5 / 5 pts**

A Java class is like a complete blueprint and is used to instantiate a Java object.

Correct!

☒ True

☐ False

You are correct!

Question 31

5 / 5 pts

number is a Java primitive type.

☐ True

☒ False

Correct!

You are correct!

Question 32

10 / 10 pts

A Java interface is like a complete blueprint and is used to instantiate a Java object.

☐ True

☒ False

Correct!

You are correct!

Question 33

5 / 5 pts

A Java class essentially consists of data and the methods that operate on that data.

Correct!

☒ True

☐ False

You are correct!

Question 34

5 / 5 pts

A Java abstract class is like a complete blueprint and is used to instantiate a Java object.

Correct!

☐ True

☒ False

You are correct!

Question 35

5 / 5 pts

A Java interface contains abstract methods.

Correct!

☒ True

☐ False

You are correct!

Question 36

5 / 5 pts

A Java interface is another name for an abstract class.

☐ True

Correct!

☒ False

You are correct!

Question 37

5 / 5 pts

There are only eight (8) Java primitive types.

Correct!

☒ True

☐ False

You are correct!

Question 38

5 / 5 pts

A Java abstract class may contains both abstract and concrete methods.

Correct!

☒ True

☐ False

You are correct!

Question 39

10 / 10 pts

Fill in the blank.

If we want our Policeman class to inherit from our Person class we would code the Policeman class as follows:

public class Policeman _____ Person { ...

Correct!

extends

Correct Answers

extends

You are correct!

Question 40**10 / 10 pts**

Fill in the blank.

If we want our LectureRoom class to conform to our ClassroomAPI interface we would code the LectureRoom class as follows:

```
public class LectureRoom _____ ClassroomAPI { ...
```

Correct!**Correct Answers**

implements

You are correct!

Question 41**10 / 10 pts**

Fill in the blank.

```
List<_____> names = new ArrayList();
```

Correct!**Correct Answers**

String

You are correct!

Question 42**10 / 10 pts**

How does a Java class provide for data encapsulation?

Correct!☒ make class data private☐ all of these**Correct!**☒ provide public class methods to operate on class data.☐ declare abstract methods

That is correct!

Question 43**5 / 5 pts**

Every Java class is a subclass of the Object class.

Correct!☒ True☐ False

You are correct!

Question 44**10 / 10 pts**

Fill in the blank.

The name of the class constructor method for our Policeman class is _____().

Correct!

Policeman

Correct Answers

Policeman

You are correct!

Question 45

10 / 10 pts

Fill in the blank.

Declare a collection to contain the last names of all our classmates.

List<_____> names = new ArrayList<_____>();

Correct!

String

Correct Answers

List<String> names = new ArrayList<String>()

String, String

String and String

String

String,String

You are correct!

Question 46

10 / 10 pts

Advantages of using an Object Oriented design include:

Correct!

☒ code re-use

Correct!

☒ modularity

☐ improved performance

☐ all of these

That is correct!

Question 47

10 / 10 pts

Fill in the blank.

Declare a collection to contain whole numbers like 1, 2, 3, 4, etc.

List<_____> names = new ArrayList<_____>();

Correct!

Integer

Correct Answers

Integer,Integer

List<Integer> names = new ArrayList<Integer>()

Integer

Integer, Integer

Integer and Integer

You are correct!

Question 48

10 / 10 pts

Fill in the blanks.

List<_____> library = new ArrayList<_____>();

library.add("MacBeth");

library.add("Othello");

```
library.add("Romeo and Juliet");
```

```
// Show all inventory in
```

```
for (_____ title : library ) {
```

```
    System.out.println(title);
```

```
}
```

Correct!**Incorrect Answers**

```
List<String> library = new ArrayList<String>(); for(String title: library){  
    System.out.println(title);}
```

```
String
```

```
String, String, String
```

You are correct!

Question 49**5 / 5 pts**

Every Java Library class is a subclass of the Object class.

Classes we create ourselves are not a subclass of the Object class.

☐ True☒ False**Correct!**

You are correct!

Question 50**10 / 10 pts**

Overriding the Object toString() method is an example of polymorphisim.

Correct!☒ True☐ False

You are correct!

Question 51**10 / 10 pts**

What is the advantage of using an ArrayList collection class over an array to hold items?

Correct!☒ ArrayList can shrink in size☐ ArrayList has a smaller memory footprint.☐ all of these**Correct!**☒ ArrayList can grow in size

That is correct!

Question 52**10 / 10 pts**

To instantiate a collection object you must:

Correct!☒ Declare the type of the collection contents**Correct!**☒ Declare the type of the collection☐ all of these.☐ Declare the size of the collection.That is correct!**Question 53****10 / 10 pts**

What is the advantage of using an array over an ArrayList collection class to hold items?

Correct!☒ array has a smaller memory footprint.☐ array can shrink in size☐ all of these☐ array can grow in sizeThat is correct!**Question 54****10 / 10 pts**

To instantiate an object you must:

☐ all of these.

Correct!☒ Use the "new" keyword☐ code the class constructor**Correct!**☒ Use the class constructor

That is correct!

Question 55**10 / 10 pts**

What is function overriding?

☐ all of these.☒

If a subclass provides its own specific implementation of an identical method provided by the parent class, it is known as method overriding.

☐

If a subclass provides its own specific implementation (including additional parameters) of a method provided by the parent class, it is known as method overriding.

☐ none of these.**Correct!****Question 56****5 / 5 pts**

When programming in Java, using Object Oriented Programming is supported but not required.

☐ True

Correct!☒ FalseThat is correct!**Question 57****10 / 10 pts**

To use a Java class in your program, you must:

☐ all of these☒ none of these.☐ Use the keyword 'new'☐ Use the class constructorThat is correct!**Correct!****Question 58****10 / 10 pts**

Which of the following is true about the super class:

☐ none of these are true☒ Variables, methods and constructors which are declared public in the superclass can be accessed by any class.**Correct!**

Correct!

Variables, methods and constructors which are declared protected can be accessed by any subclass of the super class.

Correct!

Variables, methods and constructors which are declared private can be accessed only by the members of the super class.

That is correct!

Question 59**5 / 5 pts**

Because of its byte codes, Java is an interpreted language just like JavaScript.

☐ True☒ False**Correct!**

Yes, that is correct!

Question 60**5 / 5 pts**

Java supports multiple inheritance.

☐ True☒ False**Correct!**

Yes, that is correct!

Question 61

10 / 10 pts

FILL IN THE BLANK (spell just like when you code) When deriving sub-classes (i.e., a child class inherits from a parent class), what is NOT required but is ALWAYS recommended you use and does not effect code execution.

Correct!

@Override

Incorrect Answers

@Override

Override

Yes, that is correct!

Question 62

10 / 10 pts

Select the TRUE statements. The GoF Singleton design pattern is ALWAYS implemented with:

☐ one single design pattern

☐ no constructor

☒ static method

☐ implicit compiler provided default class constructor

Correct!

Yes, that is correct!

Question 63

10 / 10 pts

To use an API, you MUST use the following Object Oriented Principles

Correct!

☒ polymorphism

Correct!

☒ abstraction

☐ encapsulation

Correct!

☒ inheritance

Yes, that is correct!

Question 64

10 / 10 pts

To implement loose coupling you MUST use the following Object Oriented principles:

☐ encapsulation

Correct!

☒ inheritance

Correct!

☒ polymorphism

Correct!

☒ abstraction

Yes, that is correct!

Question 65

10 / 10 pts

The Simple factory pattern BREAKS which S.O.L.I.D. design principles.

☐ Dependency Inversion principle

☒ Open Closed principle

☒ Single Responsibility principle

☐ Interface Segregation principle

Correct!

Correct!

Yes, that is correct!

Question 66

5 / 5 pts

The Singleton design pattern is a:

☐ behavioral pattern

☒ creational pattern

☐ structural pattern

☐ organizational pattern

Correct!

Yes, that is correct!

Question 67

5 / 5 pts

Using Design Patterns in your software design:

☐

lengthens code development cycles as more lines of code must be written

☒

improves code readability

☒

improves code testability

☐

increases software development costs to reduce software development time

Yes, that is correct!

Correct!

Correct!

Question 68

6.67 / 10 pts

```
List<String> names = new ArrayList<>();
```

The preceding Java statement CLEARLY implements the following Object Oriented principles:

☒

inheritance

☒

polymorphism

Correct!

Correct!

☐ encapsulation

Incorrect Answer

☐ ArrayList**Question 69****5 / 10 pts**

`ArrayList<String> names = new ArrayList<>();` The preceding Java statement CLEARLY fails to demonstrate the following Object Oriented principles:

You Answered

☒ encapsulation☐ inheritance

Correct!

☒ abstraction

Correct!

☒ polymorphism**Question 70****10 / 10 pts**

When writing Java code, a Lambda express must target WHAT (fill in the correct annotation WITH @)

Correct!

@FunctionalInterface

Incorrect Answers

@FunctionalInterface

Yes, that is correct!

Question 71**5 / 5 pts**

FILL IN THE BLANK (spelling counts ALL LOWERCASE LETTERS WITH NO EXTRA SPACES OR CHARACTERS) When coding in Java, which Object Oriented principle is ALWAYS employed?

Correct!**Correct Answers**

inheritance

Yes, that is correct!

Question 72**7.5 / 10 pts**

Given the following Java statement CODED WITH BEST PRACTICES, SELECT ALL SELECTIONS WHICH ARE TRUE:

```
Person dan = Factory.getInstance().getObject();
```

Correct!☒ We have an implementation of the factory Method pattern**Correct!**☒ We are using a Singleton☐ getObject() is a static method**Correct!**☒ getInstance() is a static method**Incorrect Answer**☐ Dan is NOT assigned a reference to a Person object**Question 73****10 / 10 pts**

Select ALL CORRECT ANSWERS. Given the following Java code, what is the data type of the reference assigned to names?

```
List<String> names = new ArrayList<>();
```

Correct!

☒ List

☐ None of these are correct answers

Correct!

☒ ArrayList

☐ Collections

Correct!

☒ Object

Yes, that is correct!

Question 74

10 / 10 pts

FILL IN THE BLANKS (YOU MUST spell just like when you code with NO EXTRA SPACES OR CHARACTERS) In the following Java code to DEMONSTRATE POLYMORPHISM

```
public class DemoPolymorphism {  
    private class Person {  
        private String description = null;  
        {  
            description = "I am a person.";  
        }  
        public String getDescription() {  
            return description;  
        }  
        public void setDescription(String description) {  
            this.description = description;  
        }  
        @Override
```

```
public String toString() {
    return getDescription();
}
}
private class Student extends Person {
    {
        setDescription("I am a Student!");
    }
}
public static void demo() {
    System.out.println("\n\t" + DemoPolymorphism.class.getName() +
".demo()...");

    DemoPolymorphism obj = new DemoPolymorphism();
    List<  > personList = new ArrayList<>
(Arrays.asList(
    obj.new Person(),
    obj.new Person(),
    obj.new Person()
));
    for (  person : personList) {
        System.out.println(person);
    }
    System.out.println("\n\t" + DemoPolymorphism.class.getName() +
".demo()... done!");
}
}
```

Answer 1:

Correct!

Object

Answer 2:

Correct!

Object

Yes, that is correct!

Quiz Score: **589.17** out of 610