ALGONQUIN COLLEGE

CST8132
MIDTERM REVIEW

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Question 1

When we are defining a new interface, what happens if we leave out the abstract keyword in the method definitions?

a. Because all methods in an interface are abstract, it doesn't matter whether or not we specify the abstract keyword.

b. Because all methods in an interface are abstract, it would cause a compilation error.

c. A compilation error would result because abstract methods are not allowed in an interface.

d. Because the abstract keyword is for abstract classes, a compilation error would result.

Question 1

When we are defining a new interface, what happens if we leave out the abstract keyword in the method definitions?

***a.* Because all methods in an interface are abstract, it doesn't matter whether or not we specify the abstract keyword.**

b. Because all methods in an interface are abstract, it would cause a compilation error.

c. A compilation error would result because abstract methods are not allowed in an interface.

d. Because the abstract keyword is for abstract classes, a compilation error would result.

52.46% got it right

Question 2

Given these class definitions:

```
public class A {
    public A() {
        System.out.print("A");
    }
}
public class B extends A {
    public B() {
        System.out.print("B");
    }
}
```

What is printed out by the following Java statement:

```
A a = new B();
```

a. A *b.* B *c.* A B *d.* BA *e.* none of these

Question 2

Given these class definitions:

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What is printed out by the following Java statement:

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a. A *b.* B ***c.* A B** *d.* BA *e.* none of these

72.13% got it right

Question 3

Given these class definitions:

```
public class A {
    public void a() {
        System.out.print("A");
    }
}
public class B extends A {
    public B() {
        System.out.print("B");
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}
```

What is printed out by the following Java statement:

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What is printed out by the following Java statement:

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a. A ***b.* B** *c.* A B *d.* BA *e.* none of these

72.13% got it right

Question 4

Given these class definitions:

```
public class A {
    public A(int x) {
        System.out.print("A");
    }
}
public class B extends A {
    public B() {
        System.out.print("B");
    }
}
```

What is printed out by the following Java statement:

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A a = new B();
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a. A *b.* B *c.* A B *d.* BA *e.* none of these

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Given these class definitions:

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public class A {
    public A(int x) {
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    }
}
public class B extends A {
    public B() {
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    }
}
```

What is printed out by the following Java statement:

```
A a = new B();
```

a. A *b.* B *c.* A B *d.* BA ***e.*** **none of these**

54.92% got it right

Question 5

Which of the following is true of an abstract class in Java?

a. An abstract class can be used as the superclass in polymorphic code.

b. An abstract class cannot be extended.

c. An abstract class can only define abstract methods and cannot implement methods.

d. An abstract class is used to instantiate abstract objects.

e. None of these answers

Question 5

Which of the following is true of an abstract class in Java?

***a.* An abstract class can be used as the superclass in polymorphic code.**

b. An abstract class cannot be extended.

c. An abstract class can only define abstract methods and cannot implement methods.

d. An abstract class is used to instantiate abstract objects.

e. None of these answers

53.28% got it right

Question 6

Given these class definitions:

```
public class A {
    public void do() {
        System.out.print("a");
    }
}
public class B extends A {
    public void do() {
        System.out.print("b");
    }
}
```

What is printed out by the following Java statements:

```
A a = new B();
a.do();
```

a. b *b.* ab *c.* ba d. a *e.* nothing, the code won't compile

Question 6

Given these class definitions:

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public class A {
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    }
}
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    }
}
```

What is printed out by the following Java statements:

```
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public class A {
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    public void do() {
        System.out.print("b");
    }
}
```

What is printed out by the following Java statements:

```
A a = new B();
a.do();
```

a. **b** *b.* ab *c.* ba d. a ***e.*** **nothing, the code won't compile**

62.30% got it right – Bonus question #1

Question 7

Which of the following is true about Objects in Java?

a. Instance variables implement attributes, and methods implement behaviours.

b. Local variables implement attributes, and constructors implement behaviours.

c. Local variables implement attributes, and methods implement behaviours.

d. Instance variables implement attributes, and constructors implement behaviours.

e. None of these answers.

Question 7

Which of the following is true about Objects in Java?

a. Instance variables implement attributes, and methods implement behaviours.

b. Local variables implement attributes, and constructors implement behaviours.

c. Local variables implement attributes, and methods implement behaviours.

d. Instance variables implement attributes, and constructors implement behaviours.

e. None of these answers.

72.95% got it right

Question 8

What is true of the following Java code?

```
int[] array = new int[10];
for (int i = 0; i < array.length; i--){
    array[i] = 50;
}
```

a. it would result in a compile-time error

b. it would assign all of the elements of array the value 50

c. it would result in an IndexOutOfBoundsException being thrown

d. it would generate a runtime error

e. it would result in an infinite loop

Question 8

What is true of the following Java code?

```
int[] array = new int[10];
for (int i = 0; i < array.length; i--){
    array[i] = 50;
}
```

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c. it would result in an IndexOutOfBoundsException being thrown

d. it would generate a runtime error

e. it would result in an infinite loop

79.51% got it right – Bonus question #2

Question 9

In the following Java code fragment:

```
public class MyClass {
    public void a() {
        int x;
        x = 17;
    }
    public void b() {
        a();
        /* state of x here?*/
    }
}
```

What is the best description of the state of the variable x at the indicated point?

a. x will not exist

b. x will have value 17

c. x will be available to be garbage collected

d. x will have no value

e. None of these answers

Question 9

In the following Java code fragment:

```
public class MyClass {
    public void a() {
        int x;
        x = 17;
    }
    public void b() {
        a();
        /* state of x here?*/
    }
}
```

What is the best description of the state of the variable x at the indicated point?

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b. x will have value 17

c. x will be available to be garbage collected

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e. None of these answers

53.28% got it right

Question 10

The difference between aggregation and composition is:

a. Aggregation is a stronger form of composition

b. Composition is a stronger form of aggregation

c. There are the same thing

d. They are not related

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a. Aggregation is a stronger form of composition

b. Composition is a stronger form of aggregation

c. There are the same thing

d. They are not related

86.89% got it right

Question 11

Given the following class definition:

```
public class A {
    int x;
    public A() {
        int x = 4;
    }
    public void aMethod(){
        System.out.print(x);
    }
}
```

What would be printed by the following Java code?

```
A a = new A();
a.aMethod();
```

a. 0 b. nothing, the code won't compile c. 4
d. 44 e. null

Question 11

Given the following class definition:

```
public class A {
    int x;
    public A() {
        int x = 4;
    }
    public void aMethod(){
        System.out.print(x);
    }
}
```

What would be printed by the following Java code?

```
A a = new A();
a.aMethod();
```

a. 0 b. nothing, the code won't compile c. 4 d. 44
e. null

18.85% got it right

Question 12

Given the following Java code:

```
public class A {
    private int x = 3;
}
public class B extends A {
    public void b(){
        System.out.print(x);
    }
}
```

What would be the result of the statements

```
B b = new B();
b.b();
```

a. 0 b. 3 c. nothing, because the code would not compile d. None of these answers

Question 12

Given the following Java code:

```
public class A {
    private int x = 3;
}
public class B extends A {
    public void b(){
        System.out.print(x);
    }
}
```

What would be the result of the statements

```
B b = new B();
b.b();
```

a. 0 b. 3 **c. nothing, because the code would not compile** d. None of these answers

54.10% got it right

Question 13

Which of the following statements about Java Abstract Classes and Interfaces are true?

a. an interface doesn't include implementation (method bodies) for any of its method definitions

b. a class can extend only one abstract class, but a class can implement more than one interface

c. all attributes in an interface, if any, must be constants (i.e. public static final)

d. all of the above

Question 13

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79.51% got it right

Question 14

Which of these is the correct way of calling a constructor having no parameters, of superclass A by subclass B?

a. super(void); b. superclass.(); c. super.A();

d. super();

Question 14

Which of these is the correct way of calling a constructor having no parameters, of superclass A by subclass B?

a. super(void); b. superclass.(); c. super.A();

d. super();

77.05% got it right

Question 15

Given these class definitions:

```
public class A {
    public A(int x) {
        System.out.print(x);
    }
}
public class B extends A {
    public B() {
        super(1);
        System.out.print("B");
    }
}
```

What is printed out by the following Java statement:

```
A a = new B();
```

a. 1B b. xB c. 1 d. B e. nothing, the code won't compile

Question 15

Given these class definitions:

```
public class A {
    public A(int x) {
        System.out.print(x);
    }
}
public class B extends A {
    public B() {
        super(1);
        System.out.print("B");
    }
}
```

What is printed out by the following Java statement:

```
A a = new B();
```

a. 1B b. xB c. 1 d. B e. nothing, the code won't compile

86.07% got it right

Question 16

Given these class definitions:

```
public class A {
    public A() {
        System.out.print("A");
    }
}
public class B extends A {
    public B() {
        this(4);
        System.out.print("B");
    }
    public B(int x){
        System.out.print(x);
    }
}
```

What is printed out by the following Java statement:

```
B b = new B();
```

a. AB b. nothing, the code won't compile c. AB4

d. 4AB e. A4B

Question 16

Given these class definitions:

```
public class A {
    public A() {
        System.out.print("A");
    }
}
public class B extends A {
    public B() {
        this(4);
        System.out.print("B");
    }
    public B(int x){
        System.out.print(x);
    }
}
```

What is printed out by the following Java statement:

```
B b = new B();
```

a. AB

b. nothing, the code won't compile

c. AB4

d. 4AB

e. A4B

37.70% got it right

Question 17

Given String sName = "Joe Blow"; can we execute sName = "Sally Sue Smith";?

a. Yes - the reference value for the literal "Sally Sue Smith" is copied into sName (which is a reference to a String).

b. No - the size of the String is allocated when it is created and "Sally Sue Smith" is too big.

c. No - Strings are immutable, hence cannot be changed.

d. None of the above

Question 17

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b. No - the size of the String is allocated when it is created and "Sally Sue Smith" is too big.

c. No - Strings are immutable, hence cannot be changed.

d. None of the above

73.77% got it right

Question 18

What is true of class variables in Java that are declared to be static?

a. they are associated with the class in which they are declared as opposed to objects that are instances of the class

b. they are a property of every object that is an instance of the class

c. they are immutable and cannot be changed

d. they are implemented on the stack

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65.67% got it right

Question 19

Java Interfaces are useful because

a. they can help define an Application Programming Interface (API)

b. they can help coordinate between two separate groups of programmers when one group needs to use methods that the other group implements

c. an interface forms a contract specifying what behaviour is provided by a class that implements the interface without forcing that behaviour to be implemented in a certain way

d. all of these answers

Question 19

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c. an interface forms a contract specifying what behaviour is provided by a class that implements the interface without forcing that behaviour to be implemented in a certain way

d. all of these answers

93.44% got it right

Question 20

Given these class definitions:

```
public class A {
    public A() {
        System.out.print("A");
    }
}
public class B extends A {
    public B() {
        System.out.print("B");
    }
}
```

Which of the following statements would result in a runtime error?

a. A a = (B) new A();
b. A a = (A) new B();
c. A a = new A();
d. A a = new B();

Question 20

Given these class definitions:

```
public class A {
    public A() {
        System.out.print("A");
    }
}
public class B extends A {
    public B() {
        System.out.print("B");
    }
}
```

Which of the following statements would result in a runtime error?

a. A a = (B) new A();

b. A a = (A) new B();

c. A a = new A();

d. A a = new B();

63.93% got it right

Question 21

What is true of the following Java code?

```
int[] array = new int[10];
for (int i = array.length; i <= 0; i--){
    array[i] = 50;
}
```

a. it would result in an array with ten elements of value 0

b. it would result in a compile-time error

c. it would assign all of the elements of array the value 50

d. it would generate a runtime error

e. it would result in an infinite loop

Question 21

What is true of the following Java code?

```
int[] array = new int[10];
for (int i = array.length; i <= 0; i--){
    array[i] = 50;
}
```

a. it would result in an array with ten elements of value 0

b. it would result in a compile-time error

c. it would assign all of the elements of array the value 50

d. it would generate a runtime error

e. it would result in an infinite loop

26.23% got it right

Question 22

Which of the following is an “unchecked exception”?

a. RuntimeException

b. Error

c. IOException

d. All of the above

e. None of the above

Question 22

Which of the following is an “unchecked exception”?

a. **RuntimeException**

b. Error

c. IOException

d. All of the above

e. None of the above

36.89% got it right

Question 23

Which of the following statement is most true:

a. The throwable keyword is used in the signature of a method to indicate that this method might throw an exception

b. The throw keyword is used to explicitly throw an exception from a method

c. All exceptions that are not “Error” must be handled

d. Catch blocks must be placed from the general to the specific

e. a and b above

Question 23

Which of the following statement is most true:

a. The throwable keyword is used in the signature of a method to indicate that this method might throw an exception

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77.05% got it right – Bonus question #3

Question 24

From a performance point of view, the best way to write a file is:

a. Files.write for both text and binary
b. BufferedOutputStreamWriter for both text and binary
c. PrintWriter for text and DataOutputStream for binary
d. BufferedFileWriter for text and Files.writeAllBytes for binary
e. FileWriter for text and FileOutputStream for binary

Question 24

From a performance point of view, the best way to write a file is:

a. **Files.write for both text and binary**

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e. FileWriter for text and FileOutputStream for binary

54.92% got it right – Bonus question #4

Question 25

Which of the following statement about Javadoc is true:

a. Javadoc replaces the need for comments in your code

b. Javadoc descriptions may not contain HTML

c. You need not create Javadoc comments for private methods

d. A one line Javadoc comment must start with //*

e. Javadoc is intended for other developers that have access to your source code

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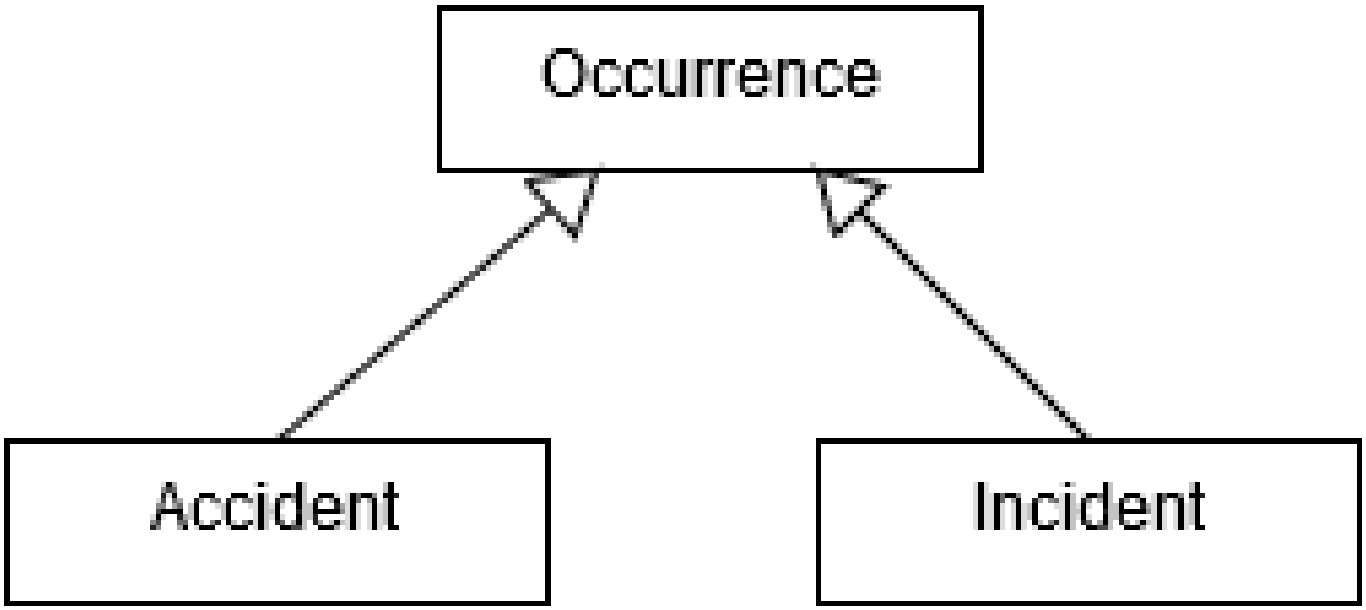
81.97% got it right – Bonus question #5

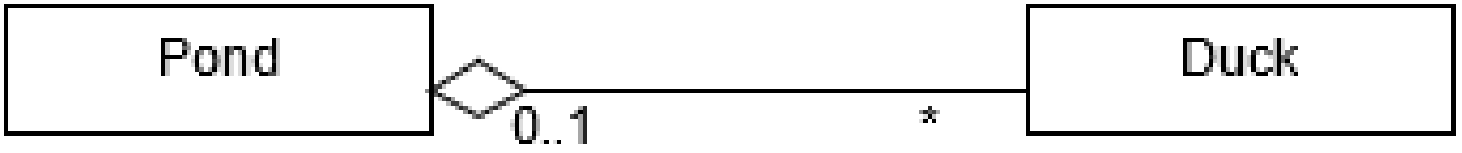
Short Answer Questions

26. Occurrences can be accidents or incidents
27. A pond may contain ducks
28. A book must have authors, an author must have books
29. An apartment has rooms
30. A programmer uses programming languages

Question 26
Occurrences can be accidents or incidents

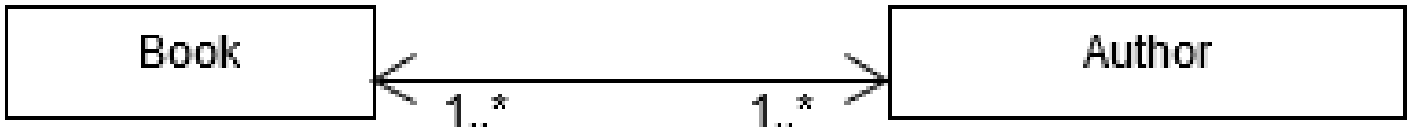


Question 27
A pond may contain ducks

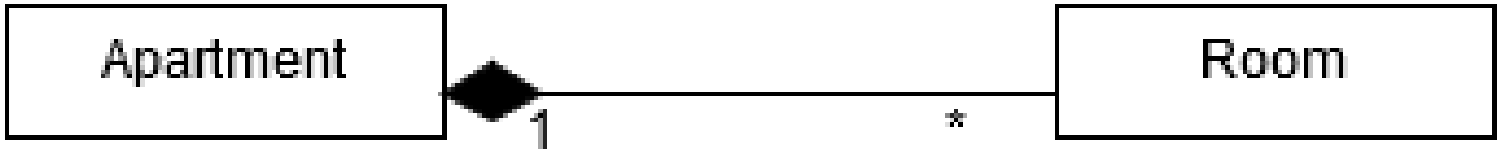


Question 28
A book must have authors, an author must have books

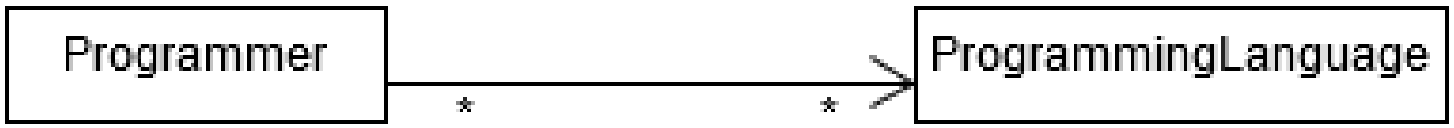
Question 28 (Also accept)
A book must have authors, an author must have books



Question 29
An apartment has rooms



Question 30
A programmer uses programming languages



Question 26-30 - scoring

- Correct classes is worth 1 mark
- Correct relationship is worth 1 mark
  - Correct type (0.5)
  - Correct direction (0.5)

Note: Cardinality is not used for marking

Stats

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- 122 out of 130 (93.84%) students (both lectures) wrote the midterm

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- 117 (95.90%) got at least 50%

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- 117 (95.90%) got at least 50%
- 112 (91.80%) got 60% or better

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- Class median was 78.33%
- 117 (95.90%) got at least 50%
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- 16 (13.11%) got 100% or better

Stats

- 122 out of 130 (93.84%) students (both lectures) wrote the midterm
- Class average was 79.08%
- Class median was 78.33%
- 117 (95.90%) got at least 50%
- 112 (91.80%) got 60% or better
- 16 (13.11%) got 100% or better
- 2 got only 1 question wrong

If you got <60% you need to:

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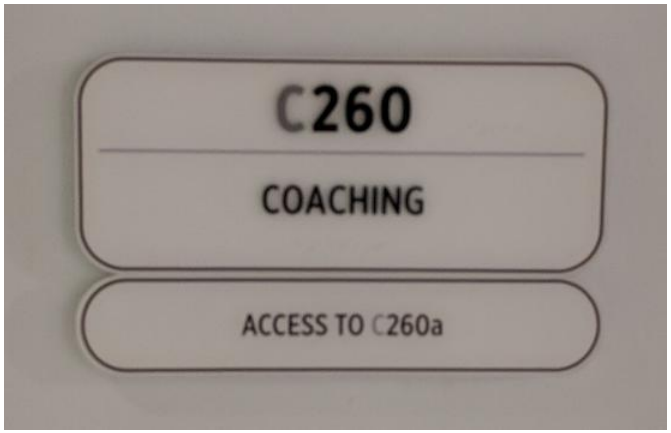
- Form a study group

If you got <60% you need to:

- Ask for help



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Questions? Comments?