



## Exam 1

### Version 1

Name: \_\_\_\_\_ Student Id: \_\_\_\_\_

Signature: \_\_\_\_\_ Section:

Lect I	10–11
Lect II	1–2

### Answers to Part I

Question	A	B	C	D	E
1.					
2.					
3.					
4.					
5.					
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9.					
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### Grades

Part I	50	
Correct		
Incorrect		
Blank		
Part II	53	
1.1.1	2	
1.1.2	3	
1.1.3	3	
1.1.4	2	
1.1.5	2	
1.2.1	2	
1.2.2	3	
1.2.3	8	
1.2.4	2	
1.2.5	2	
1.2.6	2	
1.2.7	2	
1.3	10	
2	12	
<b>Total</b>	<b>105</b>	



```
// 1.1.3 (3 points) Method getShortestDimension:  
//     Takes no parameters and returns a float which gives the stacking dimension of the  
//     shipping box. Note: the shipping box will be stacked along its shortest dimension.
```

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```
// 1.1.4 (2 points) Method getVolume:  
//     Takes no parameters and returns a float which gives the volume of the shipping box.
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```
// 1.1.5 (2 points) Method toString:  
//     Returns the three properties of a ShippingBox object as a String object with these values  
//     separated by commas.
```

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}

2. The class `ShippingContainer` has three data members, *length* (of type `int`), *stackedLength* (of type `float`), and *stackedVolume* (of type `float`). Also, complete the constructor(s) and other methods whose specifications appear in comments.

```
public class ShippingBox {
{
```

```
    // 1.2.1 (2 points) Instance variable declarations
```

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```

```
    // 1.2.2 (3 points) Constructor:
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```
    //     Takes one parameter of type int. The constructor ensures that the parameter is greater than
    //     zero. An illegal value defaults to 10. The constructor should also initialize the container's
    //     other instance variables.
```

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```
    // 1.2.3 (8 points) Method stackBox:
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```
    //     Takes one parameter: box of type ShippingBox and returns a boolean. The method
    //     returns true if there is room in the length of the container to further stack the box parameter
    //     along its shortest dimension, false otherwise. When the box is successfully stacked, the
    //     method updates the object's stackedLength and stackedVolume instance variables.
```

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```
// 1.2.4 (2 points) Method getStackingRatio:  
//     Takes no parameters and returns a float indicating the ratio of the container that is filled up  
//     by length (the ratio of the container's stackedLength and length).
```

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```
// 1.2.5 (2 points) Method getStackingEfficiency:  
//     Takes no parameters and returns a float giving the stacking efficiency of the container  
//     (the ratio of stackedVolume and the container's volume—its length × cross section).
```

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```
// 1.2.6 (2 points) Method toString:  
//     Returns the properties of a ShippingBox object, length, stacking length, and stacking  
//     volume, as a String object with these values separated by commas.
```

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}









