# Intro Exercises Theory – Matthew Van der Bijl (VBJMAT001)

## Question 1

Parameters can be passed to an object by one of two ways, namely either by reference or by value.

## Question 2

When a parameter is passed by reference a pointer referring back to the original object is sent to the method. This allows for the altering of the original object's attributes. When a parameter is sent a value, however, new memory is allocated for the data. Therefore, altering the value of the parameter will not change the state of the original value passed. Typically, only primitives are passed by value.

## Question 3

Say there is a *Person* class that has an integer attribute for *age* and a string attribute for *name*. If an instance of the *Person* class is parsed to a method and the *age* attribute is changed, the value of age for the person is changed. While if the age value only is parsed to a method and the method changes the value of age only the local value of age will be altered and not the age value of the person.

## Question 4

### a)

Exceptions, when used correctly, may make the handling of bugs, error and other unforeseen events easier for the programmer. Common examples of exception handling include validating that a value is never divided by zero or validating user input. The primary purpose of exceptions it to account for unforeseen events.

### b)

The *catch* clause indicates what type of exception was thrown as multiple exceptions can be thrown. For example, when reading a text file containing integers an exception may be thrown if the file is not found or if a line of the file is not a correctly formatted integer.

### c)

No, only a single catch block can ever be executed. Once an exception has been thrown the program will travel back up the stack and continue sequentially. This makes it impossible for a piece of code to throw multiple exceptions at once though it can be possible for the code to throw different exceptions.