

**OVERALL DECISION: COMPETENT**

**Good work!**

**Formative Assessment**

**Test-driven development (115359 & 115384)**

*Hello and welcome to the assessment. Here you’ll prove to the world just how much you know and understand about what you’ve just learnt in the learner guides. This is an important part of your time at Umuzi because once this is done, you’ll be certified! So please, take this time to learn everything you can! Take a look at some pointers below with regard to answering the questions…*

* *Be specific*
* *Write professionally - no shorthand!*
* *Your answers must be original and come from your brain and your brain only.*
* *No copy/paste tricks! Our markers have seen it all and will know if you’re taking shortcuts.*
* *Remember, sloppy or poor work will be sent back to you to do again, so do it properly the first time and you’ll be done in no time.*
* *Ask for help at any time. Ask your friends, a manager, anybody!!*
* *Don’t skip any questions! You must do them all!*
* *You’ll see two boxes after each question - one for your answer and one for the marker’s comments. DO NOT delete the marker’s comments if you are required to resubmit your work after the first attempt. Should you have to do it again you will see a new box* ***under*** *the marker’s comments, so fill that one out in* ***BLUE****. Remember!! It’s not the end of the world if you have to resubmit. You’re here to learn, so don’t beat yourself up if you don’t get it right on the first go. Obviously, try your best to get it right on the first attempt, but if not, you have another chance to do it properly!*

*Ok, and that’s that! Time to get to it! Good luck, have fun and enjoy! :)*

**Enter your name and surname below**

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| **Sinethemba Zulu** |

**1.** **Describe three types of errors in computer programming [6 Marks](6 - 359 SO:1 AC:1-3)**

**Your answer below**

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| * **Semantic errors**   The third type of error is the semantic error. If your program has a semantic error it will run successfully in the way that no error messages will be created by the computer. Your plan, though, won't do the right thing. They're going to do something else. In fact, it is going to do what you've asked it to do. The problem is the program you were writing is not the program you chose to write. ****   * **Syntax errors**   Is the type of error that occurs when humans don't follow grammar for computer programming language. For example, let's say print('hello') is the correct syntax for printing something, and we accidentally forget one of the parentheses while coding. There will be a syntax error and this will stop the program from running****   * **Logic errors**   Logic errors are the hardest to debug. They arise when the outcome that the system generates does not suit the outcome you expect it to produce. Logic errors are found mainly in the process. Logic errors occur when you apply the algorithm incorrectly to solve the problem. The secret to correcting the logic errors is being able to reliably replicate the error. **** |

**Marker’s Comments**

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| **Correct** |

**2. What is an underflow error and an overflow error? [4 Marks](4 - 359 SO:2 AC:1-2)**

**Your answer below**

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| **Overflow is** when the absolute value of the number is too large to represent the computer. ****  **The underflow is** when the absolute value of the number is too close to zero to be represented by the computer. **** |

**Marker’s Comments**

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| **Correct** |

**3. What is the three step process for test-driven development? [6 Marks](6 - 384 SO:1 AC:1-4)**

**Your answer below**

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| * Write a test that specifies a bit of functionality. **** * Ensure the test fails. (You haven’t built the functionality yet!) **** * Write only the code necessary to make the test pass. **** |

**Marker’s Comments**

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| **Correct** |

**4. How does test-driven development help reduce the number of errors/bugs in a program? [4 Marks](4 - 359 SO:2 AC:1-2)**

**Your answer below**

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| Test -driven development helps to   * Reducing bugs when applied to legacy projects**** * Decreasing bug to code ratio in new projects**** * Increasing overall software quality**** * Increasing code quality ****   It makes such errors much simpler and less repetitive. The test should be designed in such a way as to actively test the problem from all scenarios imaginable. Testing should be isolated and only the specific module should be checked for errors. It is necessary to retest the whole software because the bug fix may lead to other broken sections of the software**** |

**Marker’s Comments**

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| **Correct** |

**5. How do testing libraries (like QUnit or Mocha) help a programmer identify and eliminate bugs from a program? [4 Marks](4 - 384 SO:2 AC:1-4)**

**Your answer below**

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| Testing libraries like Moncha run serially, which means the test is more sequential, making the result more versatile and accurate. Moncha points out the uncaught exception to the test case they have been found in.Then programmers recognize bugs and can trace them back to what caused them using libraries. Knowing precisely where the error lies and how effective it is to use test libraries for programmers**** |

**Marker’s Comments**

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| **Correct** |