Software Engineering AT1 Questions

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## 10 Multiple Choice – 15 marks

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| Question | Mark | Answer | Syllabus |
| Which is the correct pseudo code for a while loop?   1. WHILE … ENDWHILE 2. While … Endwhile 3. WHILE … END 4. While (…) | 1 | a | Develop structured algorithms using pseudocode and flowcharts, including the use of subprograms |
| Which option applies to a two’s comp binaries leftmost bit?   1. – Sign 2. – Significant bit 3. Stores decimals 4. 8 bit | 1 | b | Represent integers using two’s complement |
| Which is the best option for storing decimals?   1. Float 2. Bool 3. Int 4. Char | 1 | a | Investigate standard data types |
| Which of the data structures is unordered?   1. List 2. Tuple 3. Stacks 4. Set | 1 | d | Implement data structures that support data storage |
| Which debugging tool would be best to find the error in this pseudo code?  SET age 18  IF age > 18 THEN  SET can\_vote True  ENDIF   1. Breakpoints 2. Watches 3. IDE Debug 4. Output statements | 2 | D | Use debugging tools  Develop structured algorithms using pseudocode and flowcharts, including the use of subprograms |
| Which error doesn’t throw an error message?   1. Syntax 2. Import 3. Logic 4. Runtime | 1 | c | Determine typical errors experienced when developing code, including syntax, logic and runtime, and explain their likely causes |
| What is the decimal value of the green channel in this hexadecimal RGBA value?  #a3fff101   1. 241 2. 255 3. 163 4. 256 | 2 | B | Investigate the use of number systems for computing purposes, including binary, decimal and hexadecimal |
| The two following unsigned bytes are added together. What is the resulting value in decimal?  1111 1111  0000 0001   1. 0 2. 255 3. 256 4. 1 | 2 | A | Investigate the use of number systems for computing purposes, including binary, decimal and hexadecimal |
| Which data type would be most appropriate for storing a phone number?   1. Int 2. Float 3. String 4. Text | 2 | c | Investigate standard data types |
| Which is the decimal value of this two’s comp binary: 1100?   1. 24 2. -24 3. 8 4. -8 | 2 | d | Represent integers using two’s complement |

## 5 Fill in Blank – 13 marks

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| Question | Mark | Answer | Syllabus |
| A \_\_\_\_\_ is a python built in data structure that follows LIFO. | 2 | Stack | Implement data structures that support data storage |
| The time complexity of linear search is represented in big “O” notation as \_\_\_\_\_. | 3 | O(n) | Apply computational thinking and algorithmic design by defining the key features of standard algorithms, including sequence, selection, iteration and identifying data that should be stored |
| The \_\_\_\_\_\_\_\_\_ symbol is used on an algorithm flow chart to indicate the beginning and end of an algorithm. | 3 | Terminator | Develop structured algorithms using pseudocode and flowcharts, including the use of subprograms |
| A \_\_\_ - Test Loop always executes at least once. | 2 | Post | Apply skills in computational thinking and programming to develop a software solution |
| A \_\_\_\_\_ is a keyword often used to create custom data structures | 3 | Class | Apply skills in computational thinking and programming to develop a software solution |

## 5 Rank in Order – 9 marks

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| Question | Mark | Answer | Syllabus |
| Rank in order of largest to smallest for the max value:   * Float * Int64 * Double | 1 | 1. Double 2. Float 3. Int64 | Investigate standard data types |
| Rank the order of the last three steps in the waterfall software design approach:   * Implementation * Maintenance * Verification | 2 | 1. Implementation 2. Verification 3. Maintenance | Compare the execution of the Waterfall and Agile project management models as applied to software development  Explore fundamental software development steps used by programmers when designing software |
| Rank in the order of reliability for help in programming for:   * Reddit * W3 Schools * Stack Overflow | 2 | 1. W3 Schools 2. Stack Overflow 3. Reddit | Research and evaluate the prevalence and use of online code collaboration tools |
| Rank the order in which these If statements would appear:   * Else * If * Else If | 1 | 1. If 2. Else IF 3. Else | Apply skills in computational thinking and programming to develop a software solution |
| Rank the order of the sorting algorithms from most efficient to least:   * Bogo sort * Merge sort * Bubble sort | 3 | 1. Merge sort 2. Bubble sort 3. Bogo sort | Apply computational thinking and algorithmic design by defining the key features of standard algorithms, including sequence, selection, iteration and identifying data that should be stored |

37 total marks