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| 3(a) | Any <b>two</b> from: <ul style="list-style-type: none"> <li>Low-level language</li> <li>Uses mnemonics</li> <li>Used to <b>communicate directly</b> with the computer hardware</li> </ul> |
| 3(b) | Assembler                                                                                                                                                                                 |
| 3(c) | B                                                                                                                                                                                         |

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| 7(a) | <ul style="list-style-type: none"> <li>Language: assembly</li> <li>Translator: assembler</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                       |
| 7(b) | Any four from <ul style="list-style-type: none"> <li>Each statement is translated and executed before the next</li> <li><b>Translator stops</b> when an error is found</li> <li>... can correct and continue from where error found // <b>real time</b> debugging when/where error found</li> <li>... does not need to retranslate all the code again</li> <li>Can test sections of the code</li> <li>Can test without all the program code being functional/accurate/complete</li> </ul> |
| 7(c) | Any three from:<br>Example <ul style="list-style-type: none"> <li>Code editor</li> <li>Run-time environment</li> <li>Error diagnostics // by example</li> <li>Auto-complete</li> <li>Auto-correct</li> <li>Prettyprint // syntax highlighting</li> <li>Collapse/expand block</li> <li>Auto-<b>documentation</b></li> </ul>                                                                                                                                                                |

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| 6(a) | Any <b>one</b> from: <ul style="list-style-type: none"> <li>Computer system that is designed to perform dedicated/single function</li> <li>Computer system that contains a microprocessor (and)/dedicated hardware</li> <li>Computer system that is built into a larger system</li> </ul> |
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| 6(b) | Assembler                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 6(c) | Any <b>one</b> from: <ul style="list-style-type: none"> <li>Convert to hexadecimal</li> <li>Convert to denary</li> <li>A character set can be used</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 6(d) | Any <b>one</b> from: <ul style="list-style-type: none"> <li>More control over manipulating the hardware</li> <li>Faster execution for testing than a high-level language</li> <li>They can use machine specific instructions</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6(e) | <b>Six</b> from (MAX <b>4</b> for stating features):<br><br>Code editor ...<br>... that allows the user to enter and amend code in their program<br><br>Run-time environment<br>... that allows a program to be run and see the outputs of their program<br><br>Error-diagnostic<br>... to show the programmer where there are errors in the program<br><br>Auto-completion<br>... to give the user <b>options/suggestions</b> of key commands to select<br><br>Auto-correction<br>... to correct a command that has a <b>minor misspelling</b><br><br>Prettyprint<br>... changes the colour of <b>key commands</b> so they are easy to identify |

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| 7 | Any <b>four</b> from: <ul style="list-style-type: none"> <li>It is a piece of software</li> <li>... used to write/develop/edit code</li> <li>... used test/debug the code</li> <li>... with features such as auto-completion // any suitable example</li> <li>To translate the code to low level language/machine code</li> </ul> |
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| 7(a) | Any <b>two</b> from: <ul style="list-style-type: none"> <li>Close to the language processed by computers</li> <li>May use mnemonics</li> <li>An example is assembly language/machine code</li> </ul>                                                                                                                                          |
| 7(b) | Any <b>two</b> from: <ul style="list-style-type: none"> <li>Can directly manipulate the hardware</li> <li>No requirement for the program to be portable</li> <li>Program will be more <b>memory efficient</b></li> <li>No requirement for a compiler/interpreter</li> <li>Quicker to execute</li> <li>Can use specialised hardware</li> </ul> |

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| 5(a)     | <ul style="list-style-type: none"><li>• C</li></ul>                                                                                                                                                                                                                              |
| 5(b)(i)  | Any <b>three</b> from: <ul style="list-style-type: none"><li>• It translates the (high-level language) to low-level language/object code/machine code</li><li>• It translates <b>all</b> the code <b>before</b> it is executed</li><li>• It creates an executable file</li></ul> |
| 5(b)(ii) | Any <b>two</b> from: <ul style="list-style-type: none"><li>• It creates an error report after <b>trying to compile</b></li><li>• ... displaying <b>all</b> errors in the code</li><li>• ... that require correction before execution can take place</li></ul>                    |
| 5(c)     | Any <b>three</b> from:<br>e.g. <ul style="list-style-type: none"><li>• Code editors</li><li>• Run-time environment</li><li>• Built-in interpreter</li><li>• Error diagnostics</li><li>• Auto-completion</li><li>• Auto-correction</li><li>• Prettyprint</li></ul>                |