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|  | **Area** | **Expectation** | **✓ = 1 pt** |
| 1 | Worksheet – Set up and Flowchart | Problem clearly laid out using Program Development Worksheet  Goal of program presented, |  |
| 2 | Inputs & Outputs for program listed (1-3).  Clearly shows the two possible input sources (command line & interactive). |  |
| 3 | Clear hand calculations of results  that will provides test cases for all branches of the code. |  |
| 4 | **Flowchart(s)** are used to show Program Steps (4) |  |
| 5 | Clear well laid out Visio **flowchart(s)** are used that have a logical flow of steps on the page (e.g., main flow in one direction, branching may be lined up) (4). |  |
| 6 | **Flowchart(s)** are complete & accurate reflecting the entire logic of the program as written (4). Must show all logic including sub-functions logic (4) – 2 pts. |  |
| 7 |  |
| 8 | Code for a function provided with comments including  comments listing variables & units, and program logic |  |
| 9 | Initial comments correctly setup to provide a logical and complete help file |  |
| 10 | Program Code (5) | can reliably and accurately handle command line input |  |
| 11 |  |
| 12 | can reliably and accurately handle interactive input |  |
| 13 |  |
| 14 | .m file included with essentially correct logic for calculation |  |
| 15 |  |
| 16 | program completely produces the desired output  from the desired inputs (5) |  |
| 17 |  |
| 18 | Validation (6) | Program execution included validating success with interactive input. Execution is consistent with the program code |  |
| 19 | Program execution included validating success with command line input (and no interaction). Execution is consistent with the program code |  |
| 20 | Program execution provided showing match to hand calculations cases include testing of all code branches. |  |
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