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|  |  |  | **Expectation** | **✓ =  1 pt** |
| 1 | 1. Vectorize Make Even Function | **Set up** | Program Development with appropriate: Problem ID, Problem Statement, Input Variable Definition, and Output Variable Definition |  |
| 2 | Step 4: (1) Hand solutions/ appropriate test cases   (2) Step plan: either a flow chart or a detailed step list for code |  |
| 3 | **Program Code** | Clear program comments including: introductory section that form a useful help file, a listing variables, and identification of program logic |  |
| 4 | Uses a loop with essentially correct setup  Uses vector addressing to work through the elements in the vectors |  |
| 5 | Function executes completely correctly |  |
| 6 | **Valid.** | Validation: Program test to show that code works correctly on a vector input. Includes test of all branches of the code. |  |
| 7 | b. Arbitrary Vector | **Set up** | Problem clearly laid out using Program Development Worksheet  Goal of program presented, Inputs & Outputs for program listed (1-3) |  |
| 8 | Step four on worksheet complete with a clear plan for the program (steps or a flow chart) and appropriate test cases |  |
| 9 | **Program Code** | Clear program comments including: An introductory section that form a useful help file, a listing of variables, and identification of program logic |  |
| 10 | Uses a for loop with essentially correct setup to step through a vector index |  |
| 11 | Uses vector addressing to work through the elements in the vectors and apply the condition element-by-element |  |
| 12 | Function executes completely correctly |  |
| 13 | **Valid.** | Validation: Program test to show that code works correctly on a vector input. Includes test of all branches of the code. |  |
| 14 | c. Fibonacci Sequence | **Set up** | Program Development with appropriate: Problem ID, Problem Statement, Input Variable Definition, and Output Variable Definition |  |
| 15 | Step 4: (1) Hand solutions/ appropriate test cases   (2) Step plan: either a flow chart or a detailed step list for code |  |
| 16 | **Program Code** | Clear program comments including: introductory section that form a useful help file, a listing variables, and identification of program logic |  |
| 17 | Program includes 3 inputs (i.e., the first two terms in the series and the total number of terms). Places first two values in series vector. |  |
| 18 | For loop with substantially correct logic to add successive terms to the series. |  |
| 19 | Program logic completely correct resulting in a vector of the correct Fibonacci Series. |  |
| 20 | **Valid.** | Validation: test cases and comparison to reference calculation to prove the code and all its branches work correctly |  |
|  |  | Extra Credit (from next page) = | |  |
|  |  | Total = | |  |

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|  |  |  | **Expectation** | **✓ = 1 pt** |
| 1 | d. Extra Credit Julian (Ordinal) Date | **Set up** | Program Development with appropriate: Problem ID, Problem Statement, Input Variable Definition, and Output Variable Definition |  |
| 2 | Step 4: (1) Hand solutions/ appropriate test cases   (2) Step plan: either a flow chart or a detailed step list for code |  |
| 3 | **Program Code** | Clear program comments including: introductory section that form a useful help file, a listing variables, and identification of program logic |  |
| 4 | Code complete and correct:  Code will run and meet all requirements of the problem. |  |
| 5 | **Valid.** | Validation: test cases and comparison to reference calculation to prove the code and all its branches work correctly |  |