# Evaluation Rubric :

|  |  |  |
| --- | --- | --- |
| **Evaluation parameter** | **Does not meet specifications** | **Meets specifications** |
| **Problem statement** |  | **2** |
| Problem Statement must be clearly defined |  | **√** |
| Expected input and output formats must be described |  | **√** |
| Explain the problem statement with an example(if applicable) |  | **√** |
| **Expected input & output** |  | **3** |
| Minimum of 5 test cases (if applicable) |  | **√** |
| Coverage |  | **√** |
| Border condition |  | **√** |
| Unexpected inputs |  | **√** |
| **Solution** |  | **5** |
| The correctness of the solution. |  | **√** |
| Check for all the elements (tokens) of the problem (Assignment, Arithmetic, conditional, relational, input, output etc) |  | **√** |
| **Trace Table :** |  | **5** |
| Columns are variables, conditions, print statements |  | **√** |
| Order |  | **√** |
| Trace table for each function(If applicable) |  | **√** |
| labeling the columns |  | **√** |
| Coverage (conditions, iterations... etc) |  | **√** |
| **Final Result** |  | **2** |
| Executable File Submission |  | **√** |
| **Executable File** |  | **3** |
| Check with all test cases |  | **√** |

## 

**Problem Statement**: **(2 Marks)**

Find all factors of a given number

**Test cases: (3 Marks)**

|  |  |
| --- | --- |
| **Expected Input** | **Expected Output** |
| 10 | 1 2 5 10 |
| 3 | 1 3 |
| 2 | 1 2 |
| 25 | 1 5 25 |
| 12 | 1 2 3 4 6 12 |

**Solution**: **(5 Marks)**

Step 1: START  
Step 2: Input number, n

Step 3: initialize i=1  
Step 4: For n>0 go to step 5 else print “Enter a positive number”, go to Step 9  
Step 5: i<=n, go to step 6, else go to step 9  
Step 6: n%i=0, go to step 7, else go to step 8  
Step 7: Print “i” go to step 8  
Step 8: i=i+1, go to step 6

Step 9: END

**Trace Table** : **(5 Marks)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| n | i=1 | n>0 | i<=n | n%i=0 | Print i | i=i+1 |
| 10 | 1 | 1 | 1 | 1 | 1 | 2 |
|  | 2 | 1 | 1 | 1 | 2 | 3 |
|  | 3 | 1 | 1 | 0 | 0 | 4 |
|  | 4 | 1 | 1 | 0 | 0 | 5 |
|  | 5 | 1 | 1 | 1 | 5 | 6 |
|  | 6 | 1 | 1 | 0 | 0 | 7 |
|  | 7 | 1 | 1 | 0 | 0 | 8 |
|  | 8 | 1 | 1 | 0 | 0 | 9 |
|  | 9 | 1 | 1 | 0 | 0 | 10 |
|  | 10 | 1 | 1 | 1 | 10 | 11 |
|  | 11 |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| n | i=1 | n>0 | i<=n | n%i=0 | Print i | i=i+1 |
| 3 | 1 | 1 | 1 | 1 | 1 | 2 |
|  | 2 | 1 | 1 | 1 | 0 | 3 |
|  | 3 | 1 | 1 | 0 | 3 | 4 |
|  | 4 |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| n | i=1 | n>0 | i<=n | n%i=0 | Print i | i=i+1 |
| 2 | 1 | 1 | 1 | 1 | 1 | 2 |
|  | 2 | 1 | 1 | 1 | 2 | 3 |
|  | 3 |  |  |  |  |  |

**Final Result :** **(2 Marks)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Expected input** | **Expected output** | **Actual output** | **Test result** |
| 10 | 1 2 5 10 | 1 2 5 10 | 1 |
| 3 | 1 3 | 1 3 | 1 |
| 2 | 1 2 | 1 2 | 1 |