**Table 1** – Data of each instance.

| **Instance** | **|*V*|** | **|*A*|** | **|*M*|** | **|*W*|** | **|*L*|** |
| --- | --- | --- | --- | --- | --- |
| Acre - AC | 91 | 114 | 20 | 190 | 232 |
| Alagoas - AL | 192 | 242 | 97 | 4656 | 490 |
| Amazonas - AM | 207 | 210 | 37 | 666 | 432 |
| Amapá - AP | 75 | 98 | 13 | 78 | 196 |
| Bahia - BA | 970 | 1268 | 395 | 77815 | 2568 |
| Ceará - CE | 514 | 721 | 177 | 15576 | 1492 |
| Espírito Santo - ES | 352 | 462 | 75 | 2775 | 940 |
| Goiás/Distrito Federal – GO/DF | 929 | 1294 | 241 | 28920 | 2758 |
| Maranhão - MA | 308 | 405 | 163 | 13203 | 848 |
| Minas Gerais - MG | 2105 | 2543 | 803 | 322003 | 5342 |
| Mato Grosso do Sul - MS | 532 | 686 | 76 | 2850 | 1410 |
| Mato Grosso- MT | 1339 | 1696 | 140 | 9730 | 3450 |
| Pará - PA | 461 | 538 | 122 | 7381 | 1100 |
| Paraíba - PB | 431 | 526 | 213 | 22578 | 1112 |
| Pernambuco - PE | 426 | 536 | 172 | 14706 | 1168 |
| Piauí - PI | 486 | 631 | 212 | 22366 | 1280 |
| Paraná - PR | 1018 | 1316 | 381 | 72390 | 2882 |
| Rio de Janeiro - RJ | 850 | 1067 | 86 | 3655 | 2268 |
| Rio Grande do Norte - RN | 378 | 478 | 160 | 12720 | 1012 |
| Rondônia - RO | 251 | 322 | 50 | 1225 | 662 |
| Roraima - RR | 153 | 175 | 13 | 78 | 350 |
| Rio Grande do Sul - RS | 834 | 1019 | 389 | 75466 | 2216 |
| Santa Catarina - SC | 531 | 654 | 266 | 35245 | 1360 |
| Sergipe - SE | 219 | 282 | 74 | 2701 | 578 |
| São Paulo - SP | 1458 | 1861 | 606 | 183315 | 4798 |
| Tocantins - TO | 432 | 584 | 134 | 8911 | 1196 |

**Table 3** – Instances with optimal solution found for at least two scenarios.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Inst. | *α* | *β* | B&C | | |  | CS | | | |
| *Z* | *Gap* | *Time* |  | *Bst* | *Avg* | *Dev* | *Time* |
| AC | 34 | 23 | **167** | 0 | 0.13 |  | **167** | 167.00 | 0 | 2.86 |
| 46 | **186** | 0 | 0.21 |  | **186** | 186.00 | 0 | 0.47 |
| 69 | **190** | 0 | 0.07 |  | **190** | 190.00 | 0 | 0.19 |
| AM | 63 | 43 | **648** | 0 | 0.16 |  | **648** | 648.00 | 0 | 0.49 |
| 86 | **666** | 0 | 0.04 |  | **666** | 666.00 | 0 | 0.06 |
| 129 | **666** | 0 | 0.04 |  | **666** | 666.00 | 0 | 0.05 |
| AP | 29 | 19 | **65** | 0 | 0.09 |  | **65** | 65.00 | 0 | 0.61 |
| 39 | **76** | 0 | 1.05 |  | **76** | 76.00 | 0 | 0.17 |
| 58 | **78** | 0 | 0.07 |  | **78** | 78.00 | 0 | 0.12 |
| RJ | 320 | 226 | 3416 | 6.98 | 3600.00 |  | **3606** | 3604.00 | 0.06 | 1238.75 |
| 453 | **3655** | 0 | 29.15 |  | **3655** | 3655.00 | 0 | 26.20 |
| 680 | **3655** | 0 | 0.82 |  | **3655** | 3655.00 | 0 | 3.03 |
| RR | 52 | 35 | **77** | 0 | 2.11 |  | **77** | 77.00 | 0 | 0.32 |
| 70 | **78** | 0 | 0.01 |  | **78** | 78.00 | 0 | 0.02 |
| 105 | **78** | 0 | 0.00 |  | **78** | 78.00 | 0 | 0.04 |
| SE | 84 | 57 | **2491** | 0 | 452.26 |  | 2475 | 2470.20 | 0.19 | 333.69 |
| 115 | **2645** | 0.11 | 3600.00 |  | 2644 | 2643.40 | 0.02 | 197.75 |
| 173 | **2680** | 0 | 822.07 |  | **2680** | 2680.00 | 0 | 5.37 |
| Average | | | 1195.39 | 0.39 | 472.68 |  | 1205.00 | 1204.59 | 0.02 | 100.57 |

**Table 4** – Instances with a good solution found for at least two scenarios.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Inst. | *α* | *β* | B&C | | |  | CS | | | |
| *Z* | *Gap* | *Time* |  | *Bst* | *Avg* | *Dev* | *Time* |
| AL | 72 | 49 | **4206** | 0 | 593.33 |  | 4175 | 4137.60 | 0.90 | 1287.98 |
| 98 | **4511** | 0.29 | 3600.00 |  | **4511** | 4510.00 | 0.02 | 1453.87 |
| 147 | 4588 | 0.16 | 3600.00 |  | **4589** | 4588.00 | 0.02 | 169.33 |
| ES | 138 | 94 | **2629** | 0.53 | 3600.00 |  | 2575 | 2566.40 | 0.33 | 2070.63 |
| 188 | 2740 | 0.39 | 3600.00 |  | **2743** | 2742.60 | 0.01 | 1072.23 |
| 282 | 2769 | 0.22 | 3600.00 |  | **2771** | 2771.00 | 0.00 | 103.23 |
| MA | 121 | 84 | 12106 | 3.83 | 3600.00 |  | **12134** | 12098.00 | 0.30 | 1397.61 |
| 169 | 12863 | 0.94 | 3600.00 |  | **12883** | 12877.20 | 0.05 | 2432.26 |
| 254 | 13052 | 0.37 | 3600.00 |  | **13057** | 13056.80 | 0.00 | 792.82 |
| MS | 205 | 141 | **2754** | 1.38 | 3600.00 |  | 2747 | 2744.20 | 0.10 | 2118.06 |
| 282 | 2835 | 0.53 | 2388.57 |  | **2843** | 2842.40 | 0.02 | 1267.46 |
| 423 | **2850** | 0 | 0.47 |  | **2850** | 2850.00 | 0.00 | 1.14 |
| PA | 161 | 110 | 7101 | 1.46 | 3600.00 |  | **7120** | 7110.40 | 0.13 | 1593.55 |
| 220 | 7318 | 0.29 | 3600.00 |  | **7323** | 7322.60 | 0.01 | 1173.65 |
| 330 | 7369 | 0.16 | 3600.00 |  | **7373** | 7372.40 | 0.01 | 176.22 |
| PE | 160 | 116 | **13970** | 1.79 | 3600.00 |  | 13887 | 13818.20 | 0.50 | 1322.19 |
| 233 | 14367 | 1.48 | 3600.00 |  | **14501** | 14498.40 | 0.02 | 1585.32 |
| 350 | 14601 | 0.39 | 3600.00 |  | **14623** | 14621.60 | 0.01 | 248.41 |
| RN | 143 | 101 | **12091** | 1.19 | 3600.00 |  | 11891 | 11853.60 | 0.31 | 982.85 |
| 202 | 12505 | 0.67 | 3600.00 |  | **12528** | 12526.00 | 0.02 | 1407.19 |
| 303 | 12626 | 0.30 | 3600.00 |  | **12640** | 12639.20 | 0.01 | 1467.49 |
| RO | 96 | 66 | **1157** | 0.20 | 3600.00 |  | 1154 | 1151.60 | 0.21 | 341.80 |
| 132 | 1210 | 1.05 | 3600.00 |  | **1211** | 1210.80 | 0.02 | 18.89 |
| 198 | **1225** | 0 | 14.42 |  | **1225** | 1225.00 | 0.00 | 3.54 |
| TO | 175 | 119 | **8500** | 1.47 | 3600.00 |  | 8420 | 8373.40 | 0.55 | 1360.96 |
| 239 | 8787 | 0.70 | 3600.00 |  | **8791** | 8787.00 | 0.05 | 1887.29 |
| 358 | 8868 | 0.36 | 3600.00 |  | **8873** | 8872.60 | 0.00 | 1157.84 |
| Average | | | 7392.52 | 0.75 | 3177.66 |  | 7386.59 | 7376.56 | 0.13 | 1070.14 |

**Table 5** – Instances with a low-performance solution found for at least two scenarios.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Inst. | *α* | *β* | B&C | | |  | CS | | | |
| *Z* | *Gap* | *Time* |  | *Bst* | *Avg* | *Dev* | *Time* |
| BA | 380 | 256 | 15569 | 391.39 | 3600.00 |  | **73246** | 73018.00 | 0.31 | 2336.56 |
| 513 | 47757 | 62.27 | 3600.00 |  | **77186** | 77158.40 | 0.04 | 1793.55 |
| 770 | 71139 | 9.24 | 3600.00 |  | **77579** | 77577.00 | 0.00 | 2477.41 |
| CE | 216 | 149 | 2641 | 471.56 | 3600.00 |  | **13466** | 13346.80 | 0.89 | 264.13 |
| 298 | 5994 | 157.82 | 3600.00 |  | **15305** | 15290.00 | 0.10 | 1118.05 |
| 447 | 15469 | 0.41 | 3600.00 |  | **15486** | 15484.00 | 0.01 | 1953.47 |
| GO/DF | 388 | 275 | 5469 | 420.94 | 3600.00 |  | **27246** | 26833.20 | 1.52 | 310.73 |
| 551 | 13562 | 112.77 | 3600.00 |  | **28723** | 28714.60 | 0.03 | 1372.74 |
| 827 | 25004 | 15.66 | 3600.00 |  | **28871** | 28869.40 | 0.01 | 1365.35 |
| MG | 762 | 534 | 118686 | 171.31 | 3600.00 |  | **317362** | 317052.40 | 0.10 | 2920.83 |
| 1068 | 300756 | 7.06 | 3600.00 |  | **321144** | 321130.60 | 0.00 | 2067.32 |
| 1602 | 317451 | 1.43 | 3600.00 |  | **321679** | 321675.60 | 0.00 | 1497.27 |
| MT | 508 | 345 | 2191 | 342.34 | 3600.00 |  | **9485** | 9471.20 | 0.15 | 2607.33 |
| 690 | 7989 | 21.79 | 3600.00 |  | **9726** | 9725.60 | 0.00 | 1744.06 |
| 1035 | **9730** | 0 | 6.99 |  | **9730** | 9730.00 | 0.00 | 11.46 |
| PB | 157 | 111 | 13041 | 67.41 | 3600.00 |  | **21435** | 21367.60 | 0.31 | 2600.94 |
| 222 | 18778 | 19.03 | 3600.00 |  | **22256** | 22253.20 | 0.01 | 1242.99 |
| 333 | 21550 | 4.31 | 3600.00 |  | **22430** | 22429.80 | 0.00 | 1333.76 |
| PI | 189 | 128 | 8226 | 164.20 | 3600.00 |  | **21285** | 21233.80 | 0.24 | 2290.62 |
| 256 | 18848 | 17.65 | 3600.00 |  | **22091** | 22086.40 | 0.02 | 1334.65 |
| 384 | 20904 | 6.61 | 3600.00 |  | **22252** | 22251.20 | 0.00 | 1965.34 |
| PR | 394 | 288 | 10569 | 575.93 | 3600.00 |  | **69669** | 69411.20 | 0.37 | 1363.28 |
| 576 | 57502 | 25.54 | 3600.00 |  | **71957** | 71941.60 | 0.02 | 1993.48 |
| 864 | 68729 | 5.25 | 3600.00 |  | **72214** | 72212.00 | 0.00 | 786.70 |
| RS | 305 | 221 | 19051 | 289.06 | 3600.00 |  | **72935** | 72696.40 | 0.33 | 1394.64 |
| 443 | 58303 | 28.85 | 3600.00 |  | **74873** | 74865.40 | 0.01 | 2469.71 |
| 664 | 72506 | 3.90 | 3600.00 |  | **75199** | 75197.40 | 0.00 | 2249.40 |
| SC | 196 | 136 | 16939 | 102.39 | 3600.00 |  | **33646** | 33610.60 | 0.11 | 2086.79 |
| 272 | 28793 | 21.37 | 3600.00 |  | **34806** | 34799.80 | 0.02 | 1578.01 |
| 408 | 33464 | 4.95 | 3600.00 |  | **35046** | 35042.80 | 0.01 | 1355.78 |
| SP | 558 | 479 | 50960 | 256.87 | 3600.00 |  | **176975** | 176320.60 | 0.37 | 1493.86 |
| 959 | 135105 | 35.51 | 3600.00 |  | **182603** | 182580.60 | 0.01 | 1619.37 |
| 1439 | 176628 | 3.75 | 3600.00 |  | **183017** | 183013.60 | 0.00 | 2687.70 |
| Average | | | 54221.30 | 115.71 | 3491.12 |  | 77603.73 | 77526.99 | 0.15 | 1687.49 |