|  |  |  |
| --- | --- | --- |
| Test | Greedy | SA |
| 1  R: 56.64 | Phuong an co so:  19 groups  Group 1: 1 7 -- W: 1, S: 1, T: 61, Nc: 1.07698 YES  Group 2: 2 3 14 -- W: 2, S: 2, T: 124, Nc: 2.18927 YES  Group 3: 4 -- W: 1, S: 0, T: 56, Nc: 0.988701 YES  Group 4: 5 -- W: 1, S: 0, T: 37, Nc: 0.653249 NO  Group 5: 6 -- W: 1, S: 0, T: 32, Nc: 0.564972 NO  Group 6: 8 -- W: 1, S: 0, T: 63, Nc: 1.11229 YES  Group 7: 9 -- W: 1, S: 0, T: 63, Nc: 1.11229 YES  Group 8: 10 -- W: 2, S: 0, T: 126, Nc: 2.22458 YES  Group 9: 11 -- W: 2, S: 0, T: 115, Nc: 2.03037 YES  Group 10: 12 -- W: 1, S: 0, T: 56, Nc: 0.988701 YES  Group 11: 13 -- W: 1, S: 0, T: 60, Nc: 1.05932 YES  Group 12: 15 -- W: 2, S: 0, T: 105, Nc: 1.85381 YES  Group 13: 16 -- W: 2, S: 0, T: 105, Nc: 1.85381 YES  Group 14: 17 -- W: 2, S: 0, T: 102, Nc: 1.80085 YES  Group 15: 18 -- W: 1, S: 0, T: 55, Nc: 0.971045 YES  Group 16: 19 -- W: 2, S: 0, T: 115, Nc: 2.03037 YES  Group 17: 20 -- W: 1, S: 0, T: 60, Nc: 1.05932 YES  Group 18: 21 22 -- W: 1, S: 1, T: 49, Nc: 0.865113 YES  Group 19: 23 -- W: 1, S: 0, T: 32, Nc: 0.564972 NO  26 workers, 4 saved, 84.2105% | Ket qua cuoi cung:  19 groups  Group 1: 1 7 -- W: 1, S: 1, T: 61, Nc: 1.07698 YES  Group 2: 2 3 -- W: 1, S: 1, T: 56, Nc: 0.988701 YES  Group 3: 4 -- W: 1, S: 0, T: 56, Nc: 0.988701 YES  Group 4: 5 -- W: 1, S: 0, T: 37, Nc: 0.653249 NO  Group 5: 6 14 -- W: 2, S: 1, T: 100, Nc: 1.76554 YES  Group 6: 8 -- W: 1, S: 0, T: 63, Nc: 1.11229 YES  Group 7: 9 -- W: 1, S: 0, T: 63, Nc: 1.11229 YES  Group 8: 10 -- W: 2, S: 0, T: 126, Nc: 2.22458 YES  Group 9: 11 -- W: 2, S: 0, T: 115, Nc: 2.03037 YES  Group 10: 12 -- W: 1, S: 0, T: 56, Nc: 0.988701 YES  Group 11: 13 -- W: 1, S: 0, T: 60, Nc: 1.05932 YES  Group 12: 15 -- W: 2, S: 0, T: 105, Nc: 1.85381 YES  Group 13: 16 -- W: 2, S: 0, T: 105, Nc: 1.85381 YES  Group 14: 17 -- W: 2, S: 0, T: 102, Nc: 1.80085 YES  Group 15: 18 -- W: 1, S: 0, T: 55, Nc: 0.971045 YES  Group 16: 19 -- W: 2, S: 0, T: 115, Nc: 2.03037 YES  Group 17: 20 -- W: 1, S: 0, T: 60, Nc: 1.05932 YES  Group 18: 21 22 -- W: 1, S: 1, T: 49, Nc: 0.865113 YES  Group 19: 23 -- W: 1, S: 0, T: 32, Nc: 0.564972 NO  26 workers, 4 saved, 89.4737% |
| 2  R: 50.5714 | Phuong an co so:  20 groups  Group 1: 1 3 6 -- W: 1, S: 2, T: 53, Nc: 1.04802 YES  Group 2: 2 9 10 -- W: 2, S: 1, T: 104, Nc: 2.0565 YES  Group 3: 4 5 -- W: 3, S: 1, T: 168, Nc: 3.32203 YES  Group 4: 7 -- W: 1, S: 0, T: 55, Nc: 1.08757 YES  Group 5: 8 -- W: 1, S: 0, T: 57, Nc: 1.12712 YES  Group 6: 11 12 -- W: 2, S: 1, T: 107, Nc: 2.11582 YES  Group 7: 13 14 -- W: 1, S: 1, T: 57, Nc: 1.12712 YES  Group 8: 15 -- W: 1, S: 0, T: 35, Nc: 0.69209 NO  Group 9: 16 -- W: 1, S: 0, T: 30, Nc: 0.59322 NO  Group 10: 17 -- W: 1, S: 0, T: 53, Nc: 1.04802 YES  Group 11: 18 -- W: 1, S: 0, T: 55, Nc: 1.08757 YES  Group 12: 19 -- W: 2, S: 0, T: 100, Nc: 1.9774 YES  Group 13: 20 -- W: 1, S: 0, T: 45, Nc: 0.88983 YES  Group 14: 21 -- W: 2, S: 0, T: 102, Nc: 2.01695 YES  Group 15: 22 -- W: 1, S: 0, T: 56, Nc: 1.10734 YES  Group 16: 23 -- W: 2, S: 0, T: 96, Nc: 1.89831 YES  Group 17: 24 26 -- W: 2, S: 1, T: 113, Nc: 2.23446 YES  Group 18: 25 -- W: 1, S: 0, T: 51, Nc: 1.00847 YES  Group 19: 27 28 -- W: 1, S: 1, T: 49, Nc: 0.968927 YES  Group 20: 29 30 -- W: 1, S: 1, T: 30, Nc: 0.59322 NO  28 workers, 9 saved, 85% | Ket qua cuoi cung:  21 groups  Group 1: 1 4 -- W: 1, S: 1, T: 57, Nc: 1.12712 YES  Group 2: 2 -- W: 1, S: 0, T: 48, Nc: 0.949153 YES  Group 3: 3 6 -- W: 1, S: 1, T: 50, Nc: 0.988701 YES  Group 4: 5 9 -- W: 3, S: 1, T: 142, Nc: 2.80791 YES  Group 5: 7 -- W: 1, S: 0, T: 55, Nc: 1.08757 YES  Group 6: 8 -- W: 1, S: 0, T: 57, Nc: 1.12712 YES  Group 7: 10 11 -- W: 2, S: 1, T: 113, Nc: 2.23446 YES  Group 8: 12 16 -- W: 1, S: 1, T: 52, Nc: 1.02825 YES  Group 9: 13 14 -- W: 1, S: 1, T: 57, Nc: 1.12712 YES  Group 10: 15 -- W: 1, S: 0, T: 35, Nc: 0.69209 NO  Group 11: 17 -- W: 1, S: 0, T: 53, Nc: 1.04802 YES  Group 12: 18 -- W: 1, S: 0, T: 55, Nc: 1.08757 YES  Group 13: 19 -- W: 2, S: 0, T: 100, Nc: 1.9774 YES  Group 14: 20 -- W: 1, S: 0, T: 45, Nc: 0.88983 YES  Group 15: 21 -- W: 2, S: 0, T: 102, Nc: 2.01695 YES  Group 16: 22 -- W: 1, S: 0, T: 56, Nc: 1.10734 YES  Group 17: 23 -- W: 2, S: 0, T: 96, Nc: 1.89831 YES  Group 18: 24 26 -- W: 2, S: 1, T: 113, Nc: 2.23446 YES  Group 19: 25 -- W: 1, S: 0, T: 51, Nc: 1.00847 YES  Group 20: 27 28 -- W: 1, S: 1, T: 49, Nc: 0.968927 YES  Group 21: 29 30 -- W: 1, S: 1, T: 30, Nc: 0.59322 NO  28 workers, 9 saved, 90.4762% |
| 3  R: 56.2105 | Phuong an co so:  27 groups  Group 1: 1 2 -- W: 1, S: 1, T: 56, Nc: 0.996255 YES  Group 2: 3 5 30 -- W: 1, S: 2, T: 63, Nc: 1.12079 YES  Group 3: 4 -- W: 1, S: 0, T: 56, Nc: 0.996255 YES  Group 4: 6 -- W: 2, S: 0, T: 115, Nc: 2.04588 YES  Group 5: 7 -- W: 1, S: 0, T: 58, Nc: 1.03184 YES  Group 6: 8 9 10 -- W: 3, S: 1, T: 180, Nc: 3.20225 YES  Group 7: 11 16 -- W: 1, S: 1, T: 56, Nc: 0.996255 YES  Group 8: 12 -- W: 1, S: 0, T: 63, Nc: 1.12079 YES  Group 9: 13 -- W: 1, S: 0, T: 50, Nc: 0.889513 YES  Group 10: 14 -- W: 2, S: 0, T: 115, Nc: 2.04588 YES  Group 11: 15 20 -- W: 2, S: 1, T: 120, Nc: 2.13483 YES  Group 12: 17 -- W: 1, S: 0, T: 40, Nc: 0.71161 NO  Group 13: 18 -- W: 1, S: 0, T: 63, Nc: 1.12079 YES  Group 14: 19 -- W: 2, S: 0, T: 110, Nc: 1.95693 YES  Group 15: 21 -- W: 2, S: 0, T: 104, Nc: 1.85019 YES  Group 16: 22 -- W: 1, S: 0, T: 50, Nc: 0.889513 YES  Group 17: 23 -- W: 2, S: 0, T: 110, Nc: 1.95693 YES  Group 18: 24 -- W: 2, S: 0, T: 100, Nc: 1.77903 YES  Group 19: 25 -- W: 2, S: 0, T: 102, Nc: 1.81461 YES  Group 20: 26 -- W: 2, S: 0, T: 101, Nc: 1.79682 YES  Group 21: 27 -- W: 1, S: 0, T: 60, Nc: 1.06742 YES  Group 22: 28 -- W: 2, S: 0, T: 68, Nc: 1.20974 NO  Group 23: 29 -- W: 2, S: 0, T: 120, Nc: 2.13483 YES  Group 24: 31 -- W: 1, S: 0, T: 46, Nc: 0.818352 NO  Group 25: 32 -- W: 1, S: 0, T: 38, Nc: 0.67603 NO  Group 26: 33 34 -- W: 1, S: 1, T: 60, Nc: 1.06742 YES  Group 27: 35 -- W: 1, S: 0, T: 32, Nc: 0.569288 NO  40 workers, 7 saved, 81.4815% | Ket qua cuoi cung:  25 groups  Group 1: 1 2 -- W: 1, S: 1, T: 56, Nc: 0.996255 YES  Group 2: 3 4 5 -- W: 2, S: 1, T: 103, Nc: 1.8324 YES  Group 3: 6 -- W: 2, S: 0, T: 115, Nc: 2.04588 YES  Group 4: 7 -- W: 1, S: 0, T: 58, Nc: 1.03184 YES  Group 5: 8 9 10 -- W: 3, S: 1, T: 180, Nc: 3.20225 YES  Group 6: 11 17 -- W: 1, S: 1, T: 59, Nc: 1.04963 YES  Group 7: 12 -- W: 1, S: 0, T: 63, Nc: 1.12079 YES  Group 8: 13 -- W: 1, S: 0, T: 50, Nc: 0.889513 YES  Group 9: 14 -- W: 2, S: 0, T: 115, Nc: 2.04588 YES  Group 10: 15 16 -- W: 1, S: 1, T: 56, Nc: 0.996255 YES  Group 11: 18 -- W: 1, S: 0, T: 63, Nc: 1.12079 YES  Group 12: 19 -- W: 2, S: 0, T: 110, Nc: 1.95693 YES  Group 13: 20 -- W: 2, S: 0, T: 101, Nc: 1.79682 YES  Group 14: 21 -- W: 2, S: 0, T: 104, Nc: 1.85019 YES  Group 15: 22 -- W: 1, S: 0, T: 50, Nc: 0.889513 YES  Group 16: 23 -- W: 2, S: 0, T: 110, Nc: 1.95693 YES  Group 17: 24 -- W: 2, S: 0, T: 100, Nc: 1.77903 YES  Group 18: 25 -- W: 2, S: 0, T: 102, Nc: 1.81461 YES  Group 19: 26 -- W: 2, S: 0, T: 101, Nc: 1.79682 YES  Group 20: 27 -- W: 1, S: 0, T: 60, Nc: 1.06742 YES  Group 21: 28 -- W: 2, S: 0, T: 68, Nc: 1.20974 NO  Group 22: 29 -- W: 2, S: 0, T: 120, Nc: 2.13483 YES  Group 23: 30 31 32 -- W: 2, S: 1, T: 100, Nc: 1.77903 YES  Group 24: 33 34 -- W: 1, S: 1, T: 60, Nc: 1.06742 YES  Group 25: 35 -- W: 1, S: 0, T: 32, Nc: 0.569288 NO  40 workers, 7 saved, 92% |
| 4  R: 30.375 | Phuong an co so:  27 groups  Group 1: 1 5 19 -- W: 2, S: 2, T: 65, Nc: 2.13992 YES  Group 2: 2 10 26 -- W: 2, S: 1, T: 67, Nc: 2.20576 YES  Group 3: 3 11 36 -- W: 2, S: 2, T: 67, Nc: 2.20576 YES  Group 4: 4 23 -- W: 1, S: 1, T: 32, Nc: 1.0535 YES  Group 5: 6 12 -- W: 1, S: 1, T: 34, Nc: 1.11934 YES  Group 6: 7 30 -- W: 1, S: 1, T: 28, Nc: 0.921811 YES  Group 7: 8 20 -- W: 1, S: 1, T: 33, Nc: 1.08642 YES  Group 8: 9 24 -- W: 1, S: 1, T: 32, Nc: 1.0535 YES  Group 9: 13 16 -- W: 1, S: 1, T: 24, Nc: 0.790123 NO  Group 10: 14 21 -- W: 1, S: 1, T: 30, Nc: 0.987654 YES  Group 11: 15 -- W: 1, S: 0, T: 29, Nc: 0.954733 YES  Group 12: 17 31 37 -- W: 1, S: 2, T: 33, Nc: 1.08642 YES  Group 13: 18 -- W: 1, S: 0, T: 30, Nc: 0.987654 YES  Group 14: 22 25 35 -- W: 2, S: 1, T: 62, Nc: 2.04115 YES  Group 15: 27 -- W: 1, S: 0, T: 23, Nc: 0.757202 NO  Group 16: 28 -- W: 1, S: 0, T: 30, Nc: 0.987654 YES  Group 17: 29 -- W: 1, S: 0, T: 23, Nc: 0.757202 NO  Group 18: 32 -- W: 1, S: 0, T: 28, Nc: 0.921811 YES  Group 19: 33 -- W: 1, S: 0, T: 28, Nc: 0.921811 YES  Group 20: 34 -- W: 2, S: 0, T: 46, Nc: 1.5144 NO  Group 21: 38 -- W: 1, S: 0, T: 32, Nc: 1.0535 YES  Group 22: 39 -- W: 1, S: 0, T: 28, Nc: 0.921811 YES  Group 23: 40 -- W: 1, S: 0, T: 31, Nc: 1.02058 YES  Group 24: 41 -- W: 1, S: 0, T: 29, Nc: 0.954733 YES  Group 25: 42 -- W: 2, S: 0, T: 49, Nc: 1.61317 NO  Group 26: 43 44 45 -- W: 1, S: 2, T: 33, Nc: 1.08642 YES  Group 27: 46 47 -- W: 1, S: 1, T: 26, Nc: 0.855967 YES  33 workers, 18 saved, 81.4815% | Ket qua cuoi cung:  24 groups  Group 1: 1 22 25 -- W: 2, S: 1, T: 60, Nc: 1.97531 YES  Group 2: 2 10 26 -- W: 2, S: 1, T: 67, Nc: 2.20576 YES  Group 3: 3 5 -- W: 1, S: 1, T: 26, Nc: 0.855967 YES  Group 4: 4 -- W: 1, S: 0, T: 29, Nc: 0.954733 YES  Group 5: 6 27 35 -- W: 2, S: 1, T: 66, Nc: 2.17284 YES  Group 6: 7 30 -- W: 1, S: 1, T: 28, Nc: 0.921811 YES  Group 7: 8 19 20 -- W: 2, S: 2, T: 68, Nc: 2.23868 YES  Group 8: 9 24 -- W: 1, S: 1, T: 32, Nc: 1.0535 YES  Group 9: 11 42 -- W: 2, S: 1, T: 64, Nc: 2.107 YES  Group 10: 12 28 29 -- W: 2, S: 1, T: 62, Nc: 2.04115 YES  Group 11: 13 16 -- W: 1, S: 1, T: 24, Nc: 0.790123 NO  Group 12: 14 21 23 -- W: 1, S: 2, T: 33, Nc: 1.08642 YES  Group 13: 15 -- W: 1, S: 0, T: 29, Nc: 0.954733 YES  Group 14: 17 31 36 -- W: 2, S: 2, T: 61, Nc: 2.00823 YES  Group 15: 18 -- W: 1, S: 0, T: 30, Nc: 0.987654 YES  Group 16: 32 -- W: 1, S: 0, T: 28, Nc: 0.921811 YES  Group 17: 33 -- W: 1, S: 0, T: 28, Nc: 0.921811 YES  Group 18: 34 37 -- W: 2, S: 1, T: 58, Nc: 1.90947 YES  Group 19: 38 -- W: 1, S: 0, T: 32, Nc: 1.0535 YES  Group 20: 39 -- W: 1, S: 0, T: 28, Nc: 0.921811 YES  Group 21: 40 -- W: 1, S: 0, T: 31, Nc: 1.02058 YES  Group 22: 41 -- W: 1, S: 0, T: 29, Nc: 0.954733 YES  Group 23: 43 44 45 -- W: 1, S: 2, T: 33, Nc: 1.08642 YES  Group 24: 46 47 -- W: 1, S: 1, T: 26, Nc: 0.855967 YES  32 workers, 19 saved, 95.8333% |
| 5  R: 26.0579 | Phuong an co so:  26 groups  Group 1: 1 6 12 -- W: 2, S: 2, T: 58.3, Nc: 2.23733 YES  Group 2: 2 18 -- W: 2, S: 1, T: 54.2, Nc: 2.07998 YES  Group 3: 3 4 13 -- W: 2, S: 1, T: 48.5, Nc: 1.86124 YES  Group 4: 5 20 22 -- W: 2, S: 2, T: 56.4, Nc: 2.16441 YES  Group 5: 7 28 -- W: 1, S: 1, T: 27, Nc: 1.03615 YES  Group 6: 8 9 -- W: 1, S: 1, T: 28.3, Nc: 1.08604 YES  Group 7: 10 11 16 -- W: 2, S: 1, T: 54.2, Nc: 2.07998 YES  Group 8: 14 23 24 -- W: 2, S: 1, T: 58.5, Nc: 2.245 YES  Group 9: 15 25 26 -- W: 2, S: 1, T: 55.9, Nc: 2.14522 YES  Group 10: 17 -- W: 1, S: 0, T: 23.2, Nc: 0.890325 YES  Group 11: 19 -- W: 1, S: 0, T: 13.4, Nc: 0.514239 NO  Group 12: 21 -- W: 1, S: 0, T: 22.6, Nc: 0.867299 YES  Group 13: 27 -- W: 1, S: 0, T: 20.3, Nc: 0.779034 NO  Group 14: 29 -- W: 1, S: 0, T: 23.3, Nc: 0.894163 YES  Group 15: 30 -- W: 3, S: 0, T: 75, Nc: 2.87821 YES  Group 16: 31 32 33 -- W: 3, S: 2, T: 86.3, Nc: 3.31186 YES  Group 17: 34 -- W: 2, S: 0, T: 38.7, Nc: 1.48515 NO  Group 18: 35 36 -- W: 2, S: 1, T: 46.3, Nc: 1.77681 YES  Group 19: 37 -- W: 1, S: 0, T: 27, Nc: 1.03615 YES  Group 20: 38 39 42 -- W: 2, S: 2, T: 45.8, Nc: 1.75762 YES  Group 21: 40 41 43 -- W: 1, S: 2, T: 24.9, Nc: 0.955564 YES  Group 22: 44 45 49 -- W: 1, S: 2, T: 26.9, Nc: 1.03232 YES  Group 23: 46 47 -- W: 1, S: 1, T: 26.6, Nc: 1.0208 YES  Group 24: 48 -- W: 1, S: 0, T: 18.3, Nc: 0.702282 NO  Group 25: 50 51 -- W: 1, S: 1, T: 22.4, Nc: 0.859624 YES  Group 26: 52 -- W: 1, S: 0, T: 7.9, Nc: 0.303171 NO  40 workers, 22 saved, 80.7692% | Ket qua cuoi cung:  27 groups  Group 1: 1 15 -- W: 2, S: 0, T: 46.5, Nc: 1.78449 YES  Group 2: 2 28 -- W: 1, S: 1, T: 25.9, Nc: 0.993941 YES  Group 3: 3 -- W: 1, S: 0, T: 28.4, Nc: 1.08988 YES  Group 4: 4 6 24 -- W: 1, S: 2, T: 26.2, Nc: 1.00545 YES  Group 5: 5 7 -- W: 1, S: 1, T: 28.1, Nc: 1.07837 YES  Group 6: 8 25 -- W: 1, S: 1, T: 25.1, Nc: 0.96324 YES  Group 7: 9 26 -- W: 1, S: 1, T: 29.5, Nc: 1.13209 YES  Group 8: 10 11 16 -- W: 2, S: 1, T: 54.2, Nc: 2.07998 YES  Group 9: 12 22 -- W: 3, S: 1, T: 75.5, Nc: 2.89739 YES  Group 10: 13 19 -- W: 1, S: 1, T: 26.1, Nc: 1.00162 YES  Group 11: 14 20 -- W: 1, S: 1, T: 27.9, Nc: 1.07069 YES  Group 12: 17 -- W: 1, S: 0, T: 23.2, Nc: 0.890325 YES  Group 13: 18 27 -- W: 2, S: 1, T: 53.5, Nc: 2.05312 YES  Group 14: 21 -- W: 1, S: 0, T: 22.6, Nc: 0.867299 YES  Group 15: 23 -- W: 1, S: 0, T: 28.1, Nc: 1.07837 YES  Group 16: 29 -- W: 1, S: 0, T: 23.3, Nc: 0.894163 YES  Group 17: 30 -- W: 3, S: 0, T: 75, Nc: 2.87821 YES  Group 18: 31 32 33 -- W: 3, S: 2, T: 86.3, Nc: 3.31186 YES  Group 19: 34 -- W: 2, S: 0, T: 38.7, Nc: 1.48515 NO  Group 20: 35 36 -- W: 2, S: 1, T: 46.3, Nc: 1.77681 YES  Group 21: 37 -- W: 1, S: 0, T: 27, Nc: 1.03615 YES  Group 22: 38 48 -- W: 1, S: 1, T: 25.2, Nc: 0.967077 YES  Group 23: 39 51 52 -- W: 1, S: 2, T: 25, Nc: 0.959402 YES  Group 24: 40 41 43 -- W: 1, S: 2, T: 24.9, Nc: 0.955564 YES  Group 25: 42 45 -- W: 2, S: 1, T: 46.8, Nc: 1.796 YES  Group 26: 44 49 50 -- W: 1, S: 2, T: 24.3, Nc: 0.932539 YES  Group 27: 46 47 -- W: 1, S: 1, T: 26.6, Nc: 1.0208 YES  39 workers, 23 saved, 96.2963% |