APPENDIX A AW1

In this section, we describe the results for use case AW1. First, for each problem and each time budget, we compare a pair of algorithms. Second, to compare the overall performance of the algorithms, we combine all objectives together by calculating average values of the objective functions (called *OFV*):

$$OFV = \frac{\sum_{i=1}^{n} Fitness_i}{n}$$

where n is the number of objectives for the prioritization problem, and $Fitness_i$ is the fitness value of the ith objective for the problem. Third, we used hypervolume (HV)—the most commonly used quality indicator to compare the overall performance of multi-objective search algorithms. Last, we calculated Rank and Confidence (as described in Section 4.1.5) for group comparison.

A.1 Experiment Results for RQ1

This section describes the results for Experiment Results for RQ1.

A.1.1 Problem 1

This section describes the results for prioritization problem f(PET, PTR, AUM).

TABLE 1. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics between Multi-Objective Algorithms and RS (AW1, f(PET, PTR, AUM))

| ТВ | A loo with me A | A loosith as D | P | ET | P | TR | A | UM | О | FV | H | IV |
|--------|-----------------|----------------|-------|--------|------|--------|-------|--------|-------|--------|------|--------|
| 1 B | AlgorithmA | AlgorithmB | A12 | р | A12 | р | A12 | р | A12 | р | A12 | р |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| TB010 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0010 | SPEA2 | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB020 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 D020 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB030 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0030 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 DU4U | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TROFO | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB050 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TDOCO | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB060 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB070 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 DU/U | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB080 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

| ТВ | AlgorithmA | AlgorithmB | P | ET | P | ΓR | Al | UM | О | FV | H | IV |
|-------|------------|-------------|-------|--------|------|--------|-------|--------|-------|--------|------|--------|
| 10 | Aigonuma | Aigontiilib | A12 | p | A12 | p | A12 | p | A12 | p | A12 | p |
| TB090 | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10100 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

A.1.2 Problem 2

This section describes the results for prioritization problem f(PET, PTR, PUS).

TABLE 2. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics between Multi-Objective Algorithms and RS (AW1, f(PET, PTR, PUS))

| | lgorithmA NSGA2 | AlgorithmB | 110 | | | | | | | | | IV |
|----------|--------------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|------|--------|
| | NSGA2 | | A12 | p | A12 | p | A12 | p | A12 | p | A12 | p |
| TB010 | | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.9 | < 0.01 |
| 1 DUIU - | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.9 | < 0.01 |
| | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB020 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0020 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB030 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0030 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10040 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TROFO | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB050 — | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB060 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TD070 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB070 - | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TDOOO | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB080 - | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.05 | < 0.5 | < 0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TDOOO | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 - | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 - | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

A.1.3 Problem 3

This section describes the results for prioritization problem f(PET, PTR, ANU).

TABLE 3. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics between Multi-Objective Algorithms and RS (AW1, f(PET, PTR, ANU))

| тр | A 1: 11 A | A 1: (1 D | P | ET | P | TR | A | NU | О | FV | I | IV |
|---|------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|------|--------|
| TB | AlgorithmA | AlgorithmB | A12 | р | A12 | р | A12 | р | A12 | р | A12 | p |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB010 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0010 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB020 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 6020 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB030 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0030 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10040 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB050 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB060 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 1 1 1 1 1 1 1 1 1 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB070 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10070 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB080 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 1 1 1 1 0 0 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

A.1.4 Problem 4

This section describes the results for prioritization problem f(PET, PTR, PUU).

TABLE 4. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics between Multi-Objective Algorithms and RS (AW1, f(PET, PTR, PUU))

| ТВ | AlgorithmA | AlgorithmB | P | ET | P' | TR | Pl | UU | О | FV | Н | IV |
|--------|-------------|-------------|-------|--------|-------|--------|------|--------|-------|--------|------|--------|
| 1 D | AigontilliA | Aigontillio | A12 | р | A12 | р | A12 | p | A12 | p | A12 | p |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.9 | < 0.01 |
| TB010 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 10010 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.9 | < 0.01 |
| TB020 | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0020 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

| ТВ | AlgorithmA | AlgorithmB | P | ET | P | TR | P | UU | О | FV | H | IV |
|--------|------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|------|--------|
| 1 D | Aigonumia | Aigoriumb | A12 | р | A12 | р | A12 | р | A12 | р | A12 | p |
| TB020 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10020 | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB030 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10040 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB050 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB060 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB070 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10070 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB080 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0090 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10100 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

A.1.5 Problem 5

This section describes the results for prioritization problem f(PET, PTR, AUM, PUS).

TABLE 5. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics between Multi-Objective Algorithms and RS (AW1, f(PET, PTR, AUM, PUS))

| ТВ | AlgorithmA | AlgorithmB | P | ET | P | TR | Al | UM | P | US | О | FV | H | IV |
|--------|------------|------------|-------|--------|------|--------|-------|--------|------|--------|-------|--------|------|--------|
| 1 D | AigoriumiA | Aigoriumib | A12 | p | A12 | p | A12 | p | A12 | p | A12 | p | A12 | p |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| TB010 | MoCell | SimpleRS | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0010 | SPEA2 | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| TB020 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0020 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB030 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0030 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

| ТВ | AlgorithmA | AlgorithmB | P | ET | P | TR | A | UM | P | US | О | FV | H | IV |
|-------------|------------|------------|-------|--------|------|--------|-------|--------|------|--------|-------|--------|------|--------|
| 1 D | AigoriumA | Aigoriumib | A12 | p | A12 | р | A12 | р | A12 | р | A12 | р | A12 | р |
| TB040 | CellDE | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB050 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB060 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB070 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0070 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB080 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 1 1 1 0 0 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

A.1.6 Problem 6

This section describes the results for prioritization problem f(PET, PTR, AUM, ANU).

TABLE 6. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics between Multi-Objective Algorithms and RS (AW1, f(PET, PTR, AUM, ANU))

| | | | Р | ET | P' | TR | A | UM | A | NU | О | FV | I I | IV |
|---------|------------|------------|-------|--------|------|--------|-------|--------|-------|--------|-------|--------|------|--------|
| TB | AlgorithmA | AlgorithmB | A12 | р | A12 | р | A12 | р | A12 | р | A12 | р | A12 | р |
| | NSGA2 | SimpleRS | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| TB010 | MoCell | SimpleRS | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 10010 | SPEA2 | SimpleRS | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| TB020 | MoCell | SimpleRS | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0020 | SPEA2 | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB030 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 10040 | SPEA2 | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB050 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 10000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.05 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB060 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.9 | < 0.01 |

| ТВ | AlgorithmA | AlgorithmB | P | ET | P | TR | Al | UM | A | NU | О | FV | I. | IV |
|--------|------------|------------|-------|--------|------|--------|-------|--------|-------|--------|-------|--------|------|--------|
| 1 D | AigoriumA | Aigoriumib | A12 | p | A12 | p | A12 | p | A12 | p | A12 | p | A12 | p |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB070 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 10070 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.05 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB080 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB090 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0090 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 10100 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |

A.1.7 Problem 7

This section describes the results for prioritization problem f(PET, PTR, AUM, PUU).

TABLE 7. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics between Multi-Objective Algorithms and RS (AW1, f(PET, PTR, AUM, PUU))

| ТВ | A loop with me A | A loonith on D | P | ET | P | TR | A | UM | P | UU | О | FV | H | IV |
|-------------------|------------------|----------------|-------|--------|------|--------|-------|--------|------|--------|-------|--------|------|--------|
| ID | AlgorithmA | AlgorithmB | A12 | р | A12 | р | A12 | р | A12 | р | A12 | р | A12 | р |
| | NSGA2 | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| TB010 | MoCell | SimpleRS | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 10010 | SPEA2 | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.9 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| TB020 | MoCell | SimpleRS | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0020 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB030 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0030 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 10040 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB050 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 1 1 1 1 1 1 1 1 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB060 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB070 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0070 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB080 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

| ТВ | AlgorithmA | AlgorithmB | P | ET | P | ΓR | Al | UM | PU | UU | О | FV | H | IV |
|-------|-------------|------------|-------|--------|------|--------|-------|--------|------|--------|-------|--------|------|--------|
| 10 | AigontiiliA | Aigonnini | A12 | p | A12 | p | A12 | p | A12 | p | A12 | p | A12 | p |
| | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10100 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

A.1.8 Problem 8

This section describes the results for prioritization problem f(PET, PTR, PUS, ANU).

TABLE 8. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics between Multi-Objective Algorithms and RS (AW1, f(PET, PTR, PUS, ANU))

| TD | A1 '11 A | A1 '(1 D | P | ET | P | TR | P | US | A | NU | О | FV | I | IV |
|---------|------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|------|--------|
| TB | AlgorithmA | AlgorithmB | A12 | р | A12 | р |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.9 | < 0.01 |
| TED 010 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| TB010 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TROOO | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB020 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TROSO | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB030 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.05 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10040 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB050 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB060 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB070 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10070 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.05 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB080 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | <0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10070 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10100 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

A.1.9 Problem 9

This section describes the results for prioritization problem f(PET, PTR, PUS, PUU).

TABLE 9. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics between Multi-Objective Algorithms and RS (AW1, f(PET, PTR, PUS, PUU))

| TD | A 1: 11 A | A 1: (1 D | P | ET | P | TR | P | US | P | UU | О | FV | I. | IV |
|--------|------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|------|--------|
| TB | AlgorithmA | AlgorithmB | A12 | р | A12 | р |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| TD010 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| TB010 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.05 | >0.5 | < 0.01 | < 0.5 | < 0.05 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB020 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10020 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB030 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10040 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.05 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB050 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB060 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB070 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10070 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.05 | < 0.5 | < 0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB080 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10070 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10100 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

A.1.10 Problem 10

This section describes the results for prioritization problem f(PET, PTR, ANU, PUU).

TABLE 10. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics between Multi-Objective Algorithms and RS (AW1, f(PET, PTR, ANU, PUU))

| ТВ | AlgorithmA | AlgorithmB | PET | | PTR | | A | ANU | | PUU | | OFV | | IV |
|-------|------------|------------|-------|--------|-------|--------|------|--------|------|--------|-------|--------|------|--------|
| 10 | AigonumiA | Aigoritimi | A12 | p | A12 | p | A12 | p | A12 | p | A12 | p | A12 | p |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| TB010 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 10010 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB020 | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10020 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

| ТВ | A 1 A | A loo with me D | P | ET | P | TR | A | NU | P | UU | О | FV | I | IV |
|---------|------------|-----------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|------|--------|
| 1 D | AlgorithmA | AlgorithmB | A12 | р | A12 | р |
| TDOO | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | >0.05 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB020 | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB030 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10030 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10040 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB050 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB060 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB070 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10070 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB080 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 | MoCell | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10070 | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 - | SPEA2 | SimpleRS | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | CellDE | SimpleRS | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

A.2 Experiment Results for RQ2

This section describes the results for Experiment Results for RQ2.

A.2.1 Problem 1

This section describes the results for prioritization problem f(PET, PTR, AUM).

TABLE 11. Results for the Kruskal-Wallis Test among Multi-Objective Algorithms (AW1, f(PET, PTR, AUM))

| TB | Metric | ChiSq | DF | p |
|--------|--------|----------|----|--------|
| | ET | 3633.57 | 3 | < 0.01 |
| | CTR | 7178.62 | 3 | < 0.01 |
| TB010 | UM | 8213.57 | 3 | < 0.01 |
| | OFV | 2877.07 | 3 | < 0.01 |
| | HV | 244.18 | 3 | < 0.01 |
| | ET | 9648.1 | 3 | < 0.01 |
| | CTR | 10499.62 | 3 | < 0.01 |
| TB020 | UM | 14862.99 | 3 | < 0.01 |
| | OFV | 149.87 | 3 | < 0.01 |
| | HV | 290.11 | 3 | < 0.01 |
| TB030 | ET | 10545.4 | 3 | < 0.01 |
| 1 0000 | CTR | 10245.03 | 3 | < 0.01 |

| TB | Metric | ChiSq | DF | p |
|-------|--------|----------|----|--------|
| | UM | 18463.03 | 3 | < 0.01 |
| TB030 | OFV | 1679.26 | 3 | < 0.01 |
| | HV | 334.68 | 3 | < 0.01 |
| | ET | 11026.5 | 3 | < 0.01 |
| | CTR | 9915.98 | 3 | < 0.01 |
| TB040 | UM | 19779.01 | 3 | < 0.01 |
| | OFV | 2933.95 | 3 | < 0.01 |
| | HV | 347.67 | 3 | < 0.01 |
| | ET | 14399.06 | 3 | < 0.01 |
| | CTR | 7984.73 | 3 | < 0.01 |
| TB050 | UM | 24128.73 | 3 | < 0.01 |
| | OFV | 13177.95 | 3 | < 0.01 |
| | HV | 351.66 | 3 | < 0.01 |
| | ET | 16004.56 | 3 | < 0.01 |
| | CTR | 7923.55 | 3 | < 0.01 |
| TB060 | UM | 23752.25 | 3 | < 0.01 |
| | OFV | 15344.04 | 3 | < 0.01 |
| | HV | 349.22 | 3 | < 0.01 |
| | ET | 16394.56 | 3 | < 0.01 |
| | CTR | 6793.54 | 3 | < 0.01 |
| TB070 | UM | 24403.62 | 3 | < 0.01 |
| | OFV | 17480.22 | 3 | < 0.01 |
| | HV | 344.85 | 3 | < 0.01 |
| | ET | 18019.29 | 3 | < 0.01 |
| | CTR | 6366.13 | 3 | < 0.01 |
| TB080 | UM | 24431.76 | 3 | < 0.01 |
| | OFV | 19297.28 | 3 | < 0.01 |
| | HV | 345.21 | 3 | < 0.01 |
| | ET | 18222.34 | 3 | < 0.01 |
| | CTR | 5781.01 | 3 | < 0.01 |
| TB090 | UM | 25390.28 | 3 | < 0.01 |
| | OFV | 19604.71 | 3 | < 0.01 |
| | HV | 351.41 | 3 | < 0.01 |
| | ET | 16167.22 | 3 | < 0.01 |
| | CTR | 4808.97 | 3 | < 0.01 |
| TB100 | UM | 26966.73 | 3 | < 0.01 |
| | OFV | 17236.93 | 3 | < 0.01 |
| | HV | 350.52 | 3 | < 0.01 |

TABLE 12. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics among Multi-Objective Algorithms (AW1, f(PET, PTR, AUM))

| ТВ | AlgorithmA | AlgorithmB | E | ET | C | TR | U | M | OFV | | HV | |
|--------|-------------|-------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 1 1 1 | AiguittiiiA | Aigontillio | A12 | p |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 |
| TB010 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 10010 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB020 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 10020 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| TB030 | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.05 | < 0.5 | < 0.01 |

| | | | I | ET | С | TR | U | J M | O | FV | I | IV |
|--------|------------|------------|-------|--------|-------|--------|-------|------------|-------|--------|-------|--------|
| TB | AlgorithmA | AlgorithmB | A12 | р | A12 | р | A12 | р | A12 | р | A12 | р |
| | NSGA2 | CellDE | < 0.5 | <0.01 | >0.5 | <0.01 | <0.1 | < 0.01 | < 0.5 | <0.01 | >0.9 | <0.01 |
| | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| TB030 | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| FD0.40 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| EDOFO. | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB050 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TDOCO | NSGA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB060 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TD070 | NSGA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB070 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TDOOG | NSGA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB080 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TPOOO | NSGA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TD100 | NSGA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

TABLE 13. Rank Results for each Multi-Objective Algorithms (AW1, f(PET, PTR, AUM))

| ТВ | Metric | | Rai | nk | | Confidence | | | | | |
|-------|---------|-------|--------|-------|--------|------------|--------|-------|--------|--|--|
| 10 | Wietric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE | | |
| | ET | 3 | 1 | 4 | 2 | 30% | 10% | 40% | 20% | | |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| TB010 | UM | 1 | 3 | 2 | 4 | 10% | 30% | 20% | 40% | | |
| | OFV | 2 | 2 | 3 | 1 | 25% | 25% | 38% | 12% | | |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% | | |

| TD | Metric Rank | | | | | Confidence | | | | | |
|-------------|-------------|-------|--------|-------|--------|------------|------------|-------------|------------|--|--|
| TB | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| TB020 | UM | 1 | 3 | 2 | 4 | 10% | 30% | 20% | 40% | | |
| | OFV | 2 | 3 | 3 | 1 | 22% | 33% | 33% | 11% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| TB030 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | OFV | 1 | 3 | 2 | 4 | 10% | 30% | 20% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| TD040 | CTR | 3 2 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| TB040 | UM OFV | 2 | 3 3 | 1 1 | 4 4 | 20% 20% | 30% 30% | 10% 10% | 40% 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| TB050 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| 10000 | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| TB060 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 3 | 2 | 2 | 1 | 38% | 25% | 25% | 12% | | |
| TB070 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 3 | 2 | 2 | 1 | 38% | 25% | 25% | 12% | | |
| TB080 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| TDOO | CTR | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | |
| TB090 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% 30% | 30% 20% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | | | 40% | 10% | | |
| | ET CTR | 3 | 2 | 2 | 1 | 30% 33% | 20% 33% | 40% 22% | 10% 11% | | |
| TB100 | UM | 3 2 | 3 3 | 1 | 1 4 | 20% | 33% | 10% | 40% | | |
| 1 1 1 1 0 0 | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | пν | 3 | | 4 | 1 | 30% | ZU% | 4 U% | 10% | | |

A.2.2 Problem 2

This section describes the results for prioritization problem f(PET, PTR, PUS).

TABLE 14. Results for the Kruskal-Wallis Test among Multi-Objective Algorithms (AW1, f(PET, PTR, PUS))

| TB | Metric | ChiSq | DF | p |
|-------|--------|---------|----|--------|
| | ET | 2835.25 | 3 | < 0.01 |
| | CTR | 46.14 | 3 | < 0.01 |
| TB010 | USP | 104.7 | 3 | < 0.01 |
| | OFV | 55.26 | 3 | < 0.01 |
| | HV | 109.4 | 3 | < 0.01 |

| TB | Metric | ChiSq | DF | р |
|-------|--------|---------|----|--------|
| | ET | 1875.35 | 3 | < 0.01 |
| | CTR | 79.61 | 3 | < 0.01 |
| TB020 | USP | 79.69 | 3 | < 0.01 |
| | OFV | 357.6 | 3 | < 0.01 |
| | HV | 209.33 | 3 | < 0.01 |
| | ET | 1524.13 | 3 | < 0.01 |
| | CTR | 82.42 | 3 | < 0.01 |
| TB030 | USP | 12.75 | 3 | < 0.01 |
| | OFV | 1099.09 | 3 | < 0.01 |
| | HV | 262.93 | 3 | < 0.01 |
| | ET | 1545.09 | 3 | < 0.01 |
| | CTR | 11.63 | 3 | < 0.01 |
| TB040 | USP | 8.49 | 3 | < 0.05 |
| | OFV | 1185.06 | 3 | < 0.01 |
| | HV | 316.73 | 3 | < 0.01 |
| | ET | 1001.17 | 3 | < 0.01 |
| | CTR | 124.34 | 3 | <0.01 |
| TB050 | USP | 82.89 | 3 | < 0.01 |
| | OFV | 1006.07 | 3 | < 0.01 |
| | HV | 349.78 | 3 | < 0.01 |
| | ET | 833.32 | 3 | <0.01 |
| | CTR | 152.45 | 3 | <0.01 |
| TB060 | USP | 60.97 | 3 | < 0.01 |
| | OFV | 839.92 | 3 | <0.01 |
| | HV | 332.55 | 3 | < 0.01 |
| | ET | 772.57 | 3 | < 0.01 |
| | CTR | 99.62 | 3 | < 0.01 |
| TB070 | USP | 107.65 | 3 | < 0.01 |
| | OFV | 771.59 | 3 | < 0.01 |
| | HV | 332.76 | 3 | < 0.01 |
| | ET | 874.91 | 3 | < 0.01 |
| | CTR | 170.54 | 3 | < 0.01 |
| TB080 | USP | 16.29 | 3 | < 0.01 |
| | OFV | 882.14 | 3 | < 0.01 |
| | HV | 317.16 | 3 | < 0.01 |
| | ET | 729.95 | 3 | < 0.01 |
| | CTR | 187.35 | 3 | < 0.01 |
| TB090 | USP | 35.54 | 3 | < 0.01 |
| | OFV | 732 | 3 | < 0.01 |
| | HV | 299.7 | 3 | < 0.01 |
| | ET | 640.35 | 3 | < 0.01 |
| | CTR | 79.79 | 3 | < 0.01 |
| TB100 | USP | 57.27 | 3 | < 0.01 |
| | OFV | 645.57 | 3 | < 0.01 |
| | HV | 300.36 | 3 | < 0.01 |

TABLE 15. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics among Multi-Objective Algorithms (AW1, f(PET, PTR, PUS))

| ТВ | AlgorithmA | AlgorithmB | ET | | CTR | | USP | | OFV | | HV | |
|---------|------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 10 | AiguitimiA | | A12 | р | A12 | p | A12 | p | A12 | p | A12 | p |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB010 | NSGA2 | CellDE | < 0.1 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 |
| 1 10010 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.05 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 |
| TB020 | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |

| TD | A1 '-1 A | A1 '41 D | I | T | С | TR | U | SP | О | FV | I | ΙV |
|-------|-----------------|-----------------|-------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|-----------|----------------|
| TB | AlgorithmA | AlgorithmB | A12 | р | A12 | р | A12 | р | A12 | р | A12 | p |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 |
| | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB020 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | >0.05 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB030 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | >0.05 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.05 | >0.5 | < 0.05 | >0.5 | >0.05 | < 0.5 | >0.05 |
| TB040 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 12010 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB050 | NSGA2 | CellDE | <0.1 | < 0.01 | <0.5 | < 0.01 | < 0.5 | < 0.01 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.9 | < 0.01 | <0.1 | < 0.01 |
| | MoCell | CellDE | <0.1 | < 0.01 | <0.5 | < 0.01 | <0.5 | < 0.01 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | <0.1 | < 0.01 | <0.5 | < 0.01 | <0.5 | < 0.01 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | <0.1 | < 0.01 | <0.5 | >0.05 | <0.5 | >0.05 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | <0.5 | <0.01 |
| TB060 | NSGA2 | CellDE | <0.1 | < 0.01 | <0.5 | < 0.01 | <0.5 | <0.01 | <0.1 | < 0.01 | >0.9 | <0.01 |
| | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | <0.01 | >0.5 | <0.01 | >0.9 | <0.01 | <0.1 | <0.01 |
| | MoCell | CellDE | <0.1 | < 0.01 | <0.5 | <0.01 | <0.5 | <0.01 | <0.1 | <0.01 | >0.9 | <0.01 |
| | SPEA2 | CellDE | <0.1 | < 0.01 | < 0.5 | <0.01 | < 0.5 | <0.01 | <0.1 | <0.01 | >0.9 | <0.01 |
| | NSGA2 | MoCell | <0.1 | < 0.01 | <0.5 | >0.05 | =0.5 | >0.05 | <0.1 | <0.01 | >0.9 | <0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | <0.5 | <0.01 | >0.5 | < 0.01 | >0.5 | <0.01 | <0.5 | <0.01 |
| TB070 | NSGA2 MoCell | CellDE SPEA2 | <0.1 | <0.01 <0.01 | <0.5 <0.5 | <0.01 <0.01 | <0.5 >0.5 | <0.01 <0.01 | <0.1 >0.9 | <0.01 <0.01 | >0.9 <0.1 | <0.01 <0.01 |
| | MoCell | CellDE | >0.9 | < 0.01 | < 0.5 | < 0.01 | <0.5 | <0.01 | <0.1 | <0.01 | >0.1 | < 0.01 |
| | SPEA2 | CellDE | <0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | <0.01 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | <0.1 | < 0.01 | >0.5 | >0.01 | >0.5 | >0.01 | <0.1 | <0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | <0.01 | >0.5 | <0.01 | >0.5 | < 0.01 | <0.5 | < 0.01 |
| | NSGA2 | CellDE | <0.1 | < 0.01 | <0.5 | <0.01 | >0.5 | >0.01 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| TB080 | MoCell | SPEA2 | >0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | <0.05 | >0.1 | < 0.01 | <0.1 | < 0.01 |
| | MoCell | CellDE | <0.1 | < 0.01 | <0.5 | < 0.01 | <0.5 | <0.05 | <0.1 | < 0.01 | >0.1 | < 0.01 |
| | SPEA2 | CellDE | <0.1 | < 0.01 | <0.5 | < 0.01 | < 0.5 | <0.03 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | <0.5 | < 0.01 | <0.5 | < 0.01 | < 0.5 | >0.05 | <0.5 | <0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | <0.5 | < 0.01 | >0.5 | <0.01 | >0.5 | <0.01 | <0.5 | < 0.01 | <0.5 | < 0.01 |
| | NSGA2 | CellDE | <0.1 | < 0.01 | <0.5 | < 0.01 | < 0.5 | <0.01 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | <0.01 | >0.5 | < 0.01 | <0.1 | < 0.01 |
| | MoCell | CellDE | <0.1 | < 0.01 | <0.5 | < 0.01 | <0.5 | <0.01 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | <0.1 | < 0.01 | <0.5 | < 0.01 | < 0.5 | <0.01 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | <0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.05 | <0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | <0.5 | < 0.01 |
| mp | NSGA2 | CellDE | <0.1 | < 0.01 | <0.5 | < 0.01 | <0.5 | >0.05 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | <0.1 | < 0.01 |
| | MoCell | CellDE | <0.1 | < 0.01 | <0.5 | < 0.01 | >0.5 | >0.05 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | <0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| | | | | | | | L | | | | | |

TABLE 16. Rank Results for each Multi-Objective Algorithms (AW1, f(PET, PTR, PUS))

| | 3.5.4 | | Ra | nk | | | Confid | lence | |
|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| TB | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 3 | 1 | 2 | 25% | 38% | 12% | 25% |
| TB010 | USP | 3 | 2 | 1 | 2 | 38% | 25% | 12% | 25% |
| | OFV | 2 | 2 | 1 | 1 | 33% | 33% | 17% | 17% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% |
| TB020 | USP | 1 | 2 | 3 | 2 | 12% | 25% | 38% | 25% |
| | OFV | 1 | 2 | 2 | 3 | 12% | 25% | 25% | 38% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 4 | 2 | 3 | 1 | 40% | 20% | 30% | 10% |
| | CTR | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| TB030 | USP | 2 | 2 | 1 | 2 | 29% | 29% | 14% | 29% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 1 | 1 | 1 | 1 | 25% | 25% | 25% | 25% |
| TB040 | USP | 1 | 1 | 1 | 1 | 25% | 25% | 25% | 25% |
| | OFV | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% |
| TB050 | USP | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| TB060 | USP | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 1 | 1 | 2 | 3 | 14% | 14% | 29% | 43% |
| TB070 | USP | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| TB080 | USP | 2 | 2 | 1 | 2 | 29% | 29% | 14% | 29% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 4 | 2 | 3 | 1 | 40% | 20% | 30% | 10% |
| | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| TB090 | USP | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| - | OFV | 1 | 3 | 2 | 4 | 10% | 30% | 20% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| TB100 | USP | 2 | 3 | 1 | 3 | 22% | 33% | 11% | 33% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |

A.2.3 Problem 3

This section describes the results for prioritization problem f(PET, PTR, ANU).

TABLE 17. Results for the Kruskal-Wallis Test among Multi-Objective Algorithms (AW1, f(PET, PTR, ANU))

| ТВ | Metric | ChiSq | DF | p |
|-------|--------|----------|----|--------|
| | ET | 8841.65 | 3 | < 0.01 |
| | CTR | 231.33 | 3 | < 0.01 |
| TB010 | NU | 390.04 | 3 | < 0.01 |
| | OFV | 231.66 | 3 | < 0.01 |
| | HV | 96.23 | 3 | < 0.01 |
| | ET | 4576.82 | 3 | < 0.01 |
| | CTR | 188.49 | 3 | < 0.01 |
| TB020 | NU | 648 | 3 | < 0.01 |
| | OFV | 599.33 | 3 | < 0.01 |
| | HV | 189.27 | 3 | < 0.01 |
| | ET | 4314.38 | 3 | < 0.01 |
| | CTR | 65.14 | 3 | < 0.01 |
| TB030 | NU | 365.09 | 3 | < 0.01 |
| | OFV | 2443.95 | 3 | < 0.01 |
| | HV | 272.22 | 3 | < 0.01 |
| | ET | 4779.46 | 3 | < 0.01 |
| | CTR | 307.57 | 3 | < 0.01 |
| TB040 | NU | 129.98 | 3 | < 0.01 |
| | OFV | 3636.78 | 3 | < 0.01 |
| | HV | 307.32 | 3 | < 0.01 |
| | ET | 5922.72 | 3 | < 0.01 |
| | CTR | 983.7 | 3 | < 0.01 |
| TB050 | NU | 705.31 | 3 | < 0.01 |
| | OFV | 5931.08 | 3 | < 0.01 |
| | HV | 331.41 | 3 | < 0.01 |
| | ET | 7749.79 | 3 | < 0.01 |
| | CTR | 1652.21 | 3 | < 0.01 |
| TB060 | NU | 395.12 | 3 | < 0.01 |
| | OFV | 7813.63 | 3 | < 0.01 |
| | HV | 319.26 | 3 | < 0.01 |
| | ET | 5732.36 | 3 | < 0.01 |
| | CTR | 981.83 | 3 | < 0.01 |
| TB070 | NU | 92.06 | 3 | < 0.01 |
| | OFV | 5722 | 3 | < 0.01 |
| | HV | 289.15 | 3 | < 0.01 |
| | ET | 4227.93 | 3 | < 0.01 |
| | CTR | 1304.56 | 3 | < 0.01 |
| TB080 | NU | 568.98 | 3 | < 0.01 |
| | OFV | 4239.94 | 3 | < 0.01 |
| | HV | 258.79 | 3 | < 0.01 |
| | ET | 3686.56 | 3 | < 0.01 |
| | CTR | 1146.55 | 3 | < 0.01 |
| TB090 | NU | 1126.84 | 3 | < 0.01 |
| | OFV | 3693.9 | 3 | < 0.01 |
| | HV | 252.71 | 3 | < 0.01 |
| | ET | 27654.24 | 3 | < 0.01 |
| | CTR | 6256.79 | 3 | < 0.01 |
| TB100 | NU | 19244.85 | 3 | < 0.01 |
| | OFV | 27868.45 | 3 | < 0.01 |
| | HV | 327.31 | 3 | < 0.01 |

TABLE 18. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics among Multi-Objective Algorithms (AW1, f(PET, PTR, ANU))

| TD | A.1 '(1 A | A1 '(1 D | I | ET | С | TR | N | NU | О | FV | F | IV |
|---------|-----------------|------------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|-------|----------------|
| TB | AlgorithmA | AlgorithmB | A12 | р | A12 | р | A12 | р | A12 | р | A12 | р |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TP010 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| TB010 - | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | < 0.5 | < 0.05 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | >0.05 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.05 | >0.5 | < 0.01 | < 0.5 | >0.05 |
| TB020 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 10020 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | < 0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 |
| TB030 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10030 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.05 | >0.5 | < 0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB040 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10040 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB050 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| [| NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.05 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB060 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB070 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10070 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB080 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| į | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB090 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10090 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | | | | | | | | 0.01 | | .0.01 | | |
| ļ | MoCell SPEA2 | CellDE CellDE | <0.1 <0.1 | <0.01 <0.01 | <0.5 <0.5 | <0.01 <0.01 | <0.5 <0.5 | <0.01 <0.01 | <0.1 <0.1 | <0.01 <0.01 | >0.9 | <0.01 <0.01 |

| ТВ | AlgorithmA | AlgorithmB - | ET | | CTR | | NU | | OFV | | HV | |
|-------|-------------|--------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 1 1 | AigontilliA | | A12 | p |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB100 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10100 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

TABLE 19. Rank Results for each Multi-Objective Algorithms (AW1, f(PET, PTR, ANU))

| ТВ | Metric | | Ra | nk | | | Confidence | | | | |
|--------|--------|-------|--------|-------|--------|-------|------------|-------|--------|--|--|
| 1 D | | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| TB010 | NU | 3 | 3 | 2 | 1 | 33% | 33% | 22% | 11% | | |
| | OFV | 2 | 3 | 1 | 3 | 22% | 33% | 11% | 33% | | |
| | HV | 2 | 1 | 3 | 1 | 29% | 14% | 43% | 14% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 2 | 3 | 1 | 3 | 22% | 33% | 11% | 33% | | |
| TB020 | NU | 3 | 3 | 2 | 1 | 33% | 33% | 22% | 11% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% | | |
| | ET | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% | | |
| | CTR | 1 | 4 | 2 | 3 | 10% | 40% | 20% | 30% | | |
| TB030 | NU | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | |
| | OFV | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| TB040 | NU | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% | | |
| TB050 | NU | 2 | 3 | 2 | 1 | 25% | 38% | 25% | 12% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 1 | 3 | 2 | 4 | 10% | 30% | 20% | 40% | | |
| TB060 | NU | 1 | 2 | 1 | 1 | 20% | 40% | 20% | 20% | | |
| 12000 | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| TB070 | NU | 2 | 3 | 2 | 1 | 25% | 38% | 25% | 12% | | |
| 10070 | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| TB080 | NU | 1 | 2 | 2 | 3 | 12% | 25% | 25% | 38% | | |
| 1 0000 | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | | | 30% | 20% | 40% | | | |
| | | | | 4 | 1 | | | | 10% | | |
| TDOO | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| TB090 | NU | 1 | 3 | 2 | 4 | 10% | 30% | 20% | 40% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |

| ТВ | Metric | | Rar | ık | | | Confic | lence | |
|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 10 | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 4 | 1 | 3 | 20% | 40% | 10% | 30% |
| TB100 | NU | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |

A.2.4 Problem 4

This section describes the results for prioritization problem f(PET, PTR, PUU).

TABLE 20. Results for the Kruskal–Wallis Test among Multi-Objective Algorithms (AW1, f(PET, PTR, PUU))

| TB | Metric | ChiSq | DF | p |
|-------|--------|---------|----|--------|
| | ET | 1915.44 | 3 | < 0.01 |
| | CTR | 166.61 | 3 | < 0.01 |
| TB010 | NUU | 246.86 | 3 | < 0.01 |
| | OFV | 200.45 | 3 | < 0.01 |
| | HV | 151.78 | 3 | < 0.01 |
| | ET | 2372.13 | 3 | < 0.01 |
| | CTR | 146.9 | 3 | < 0.01 |
| TB020 | NUU | 76.83 | 3 | < 0.01 |
| | OFV | 496.65 | 3 | < 0.01 |
| | HV | 248.22 | 3 | < 0.01 |
| | ET | 1860.15 | 3 | < 0.01 |
| | CTR | 112 | 3 | < 0.01 |
| TB030 | NUU | 68.77 | 3 | < 0.01 |
| | OFV | 1071.32 | 3 | < 0.01 |
| | HV | 301.27 | 3 | < 0.01 |
| | ET | 1467.08 | 3 | < 0.01 |
| | CTR | 36.89 | 3 | < 0.01 |
| TB040 | NUU | 9.82 | 3 | < 0.05 |
| | OFV | 894.28 | 3 | < 0.01 |
| | HV | 308.6 | 3 | < 0.01 |
| | ET | 760.62 | 3 | < 0.01 |
| | CTR | 146.49 | 3 | < 0.01 |
| TB050 | NUU | 147.38 | 3 | < 0.01 |
| | OFV | 755.59 | 3 | < 0.01 |
| | HV | 345.68 | 3 | < 0.01 |
| | ET | 782.76 | 3 | < 0.01 |
| | CTR | 117.89 | 3 | < 0.01 |
| TB060 | NUU | 118.2 | 3 | < 0.01 |
| | OFV | 778.39 | 3 | < 0.01 |
| | HV | 338.66 | 3 | < 0.01 |
| | ET | 663.47 | 3 | < 0.01 |
| | CTR | 151.95 | 3 | < 0.01 |
| TB070 | NUU | 96.46 | 3 | < 0.01 |
| | OFV | 661.02 | 3 | < 0.01 |
| | HV | 338.08 | 3 | < 0.01 |
| | ET | 698.56 | 3 | < 0.01 |
| | CTR | 113.91 | 3 | < 0.01 |
| TB080 | NUU | 61.12 | 3 | < 0.01 |
| | OFV | 697.92 | 3 | < 0.01 |
| | HV | 319.58 | 3 | < 0.01 |
| | ET | 759.66 | 3 | < 0.01 |
| | CTR | 87.88 | 3 | < 0.01 |
| TB090 | NUU | 75.35 | 3 | < 0.01 |
| | OFV | 766.26 | 3 | < 0.01 |
| | HV | 315.82 | 3 | < 0.01 |

| ТВ | Metric | ChiSq | DF | p |
|-------|--------|--------|----|--------|
| | ET | 710.67 | 3 | < 0.01 |
| | CTR | 128.71 | 3 | < 0.01 |
| TB100 | NUU | 55.63 | 3 | < 0.01 |
| | OFV | 716.48 | 3 | < 0.01 |
| | HV | 311 | 3 | < 0.01 |

TABLE 21. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics among Multi-Objective Algorithms (AW1, f(PET, PTR, PUU))

| | | | I | ET | С | TR | N | NUU | | OFV | | HV | |
|----------|------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|--|
| TB | AlgorithmA | AlgorithmB | A12 | р | |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | <0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | <0.5 | < 0.01 | |
| TED 04.0 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.05 | >0.5 | < 0.01 | |
| TB010 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | |
| | SPEA2 | CellDE | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | |
| TD020 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 | |
| TB020 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 | |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 | |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | |
| TB030 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| 1 0030 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 | |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | |
| TB040 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| 10040 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | NSGA2 | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | |
| TB050 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| 10000 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 | |
| TB060 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| 12000 | MoCell | SPEA2 | >0.9 | < 0.01 | < 0.5 | >0.05 | >0.5 | >0.05 | >0.9 | < 0.01 | < 0.1 | < 0.01 | |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 | |
| TB070 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| 15070 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 | |
| TB080 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |
| | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.05 | >0.5 | >0.05 | >0.9 | < 0.01 | < 0.1 | < 0.01 | |
| | MoCell | CellDE | <0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | |

| ТВ | AlgorithmA | AlgorithmB | I | ET | С | TR | NUU | | OFV | | HV | |
|---------|-------------|-------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 1 1 1 | AigontilliA | Aigontillio | A12 | p |
| TB080 | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB090 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 00 90 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.9 | < 0.01 | < 0.5 | < 0.01 |
| TB100 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10100 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

TABLE 22. Rank Results for each Multi-Objective Algorithms (AW1, f(PET, PTR, PUU))

| TD | Matri | | Ra | nk | | | Confic | lence | |
|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| TB | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 3 | 1 | 2 | 25% | 38% | 12% | 25% |
| TB010 | NUU | 3 | 4 | 2 | 1 | 30% | 40% | 20% | 10% |
| | OFV | 2 | 3 | 1 | 1 | 29% | 43% | 14% | 14% |
| | HV | 2 | 1 | 3 | 1 | 29% | 14% | 43% | 14% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| TB020 | NUU | 2 | 3 | 1 | 2 | 25% | 38% | 12% | 25% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| TB030 | NUU | 2 | 2 | 1 | 2 | 29% | 29% | 14% | 29% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 2 | 1 | 2 | 29% | 29% | 14% | 29% |
| TB040 | NUU | 2 | 2 | 1 | 1 | 33% | 33% | 17% | 17% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| TB050 | NUU | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% |
| TB060 | NUU | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% |
| TB070 | NUU | 1 | 1 | 2 | 3 | 14% | 14% | 29% | 43% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| TB080 | CTR | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% |
| | NUU | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% |

| ТВ | Metric | | Rai | nk | | | Confic | lence | |
|--------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 1 1 1 | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE |
| TB080 | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| 1 0000 | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% |
| TB090 | NUU | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| TB100 | NUU | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |

A.2.5 Problem 5

This section describes the results for prioritization problem f(PET, PTR, AUM, PUS).

TABLE 23. Results for the Kruskal-Wallis Test among Multi-Objective Algorithms (AW1, f(PET, PTR, AUM, PUS))

| TB | Metric | ChiSq | DF | p |
|--------|--------|----------|----|--------|
| | ET | 5588.83 | 3 | < 0.01 |
| | CTR | 9667.94 | 3 | < 0.01 |
| TB010 | UM | 8372.77 | 3 | < 0.01 |
| 10010 | USP | 5160.22 | 3 | < 0.01 |
| | OFV | 6046.32 | 3 | < 0.01 |
| | HV | 225.41 | 3 | < 0.01 |
| | ET | 9745.54 | 3 | < 0.01 |
| | CTR | 13233.72 | 3 | < 0.01 |
| TB020 | UM | 14419.07 | 3 | < 0.01 |
| 1 0020 | USP | 9045.72 | 3 | < 0.01 |
| | OFV | 3923.04 | 3 | < 0.01 |
| | HV | 240.12 | 3 | < 0.01 |
| | ET | 9018.22 | 3 | < 0.01 |
| | CTR | 13360.69 | 3 | < 0.01 |
| TB030 | UM | 17132.87 | 3 | < 0.01 |
| 1 0030 | USP | 8099.9 | 3 | < 0.01 |
| | OFV | 193.5 | 3 | < 0.01 |
| | HV | 284.81 | 3 | < 0.01 |
| | ET | 12146.62 | 3 | < 0.01 |
| | CTR | 12850.38 | 3 | < 0.01 |
| TD040 | UM | 17071.38 | 3 | < 0.01 |
| TB040 | USP | 7876.4 | 3 | < 0.01 |
| | OFV | 525.73 | 3 | < 0.01 |
| | HV | 296.35 | 3 | < 0.01 |
| | ET | 13545.72 | 3 | < 0.01 |
| | CTR | 10346.18 | 3 | < 0.01 |
| TB050 | UM | 20740.31 | 3 | < 0.01 |
| 1 0000 | USP | 5989.35 | 3 | < 0.01 |
| | OFV | 8998.3 | 3 | < 0.01 |
| | HV | 321.77 | 3 | < 0.01 |
| | ET | 14641.74 | 3 | < 0.01 |
| | CTR | 10418.48 | 3 | < 0.01 |
| TB060 | UM | 21521.83 | 3 | < 0.01 |
| I DUOU | USP | 5501.98 | 3 | < 0.01 |
| | OFV | 11597.38 | 3 | < 0.01 |
| | HV | 315.9 | 3 | < 0.01 |
| TD070 | ET | 15571.27 | 3 | < 0.01 |
| TB070 | CTR | 9238.82 | 3 | < 0.01 |

| TB | Metric | ChiSq | DF | p |
|--------|--------|----------|----|--------|
| | UM | 21528.76 | 3 | < 0.01 |
| TB070 | USP | 6066.41 | 3 | < 0.01 |
| 1 0070 | OFV | 14178.12 | 3 | < 0.01 |
| | HV | 315.4 | 3 | < 0.01 |
| | ET | 15246.08 | 3 | < 0.01 |
| | CTR | 9040.51 | 3 | < 0.01 |
| TB080 | UM | 21560.56 | 3 | < 0.01 |
| 1 0000 | USP | 5746.66 | 3 | < 0.01 |
| | OFV | 15219.95 | 3 | < 0.01 |
| | HV | 323.02 | 3 | < 0.01 |
| | ET | 15454.15 | 3 | < 0.01 |
| | CTR | 8955.08 | 3 | < 0.01 |
| TB090 | UM | 23581.32 | 3 | < 0.01 |
| 1 0090 | USP | 6403.79 | 3 | < 0.01 |
| | OFV | 15619.22 | 3 | < 0.01 |
| | HV | 324.11 | 3 | < 0.01 |
| | ET | 16574.3 | 3 | < 0.01 |
| | CTR | 7363.56 | 3 | < 0.01 |
| TB100 | UM | 24746.64 | 3 | < 0.01 |
| 10100 | USP | 5070.68 | 3 | < 0.01 |
| | OFV | 17127.15 | 3 | < 0.01 |
| | HV | 335.59 | 3 | < 0.01 |

TABLE 24. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics among Multi-Objective Algorithms (AW1, f(PET, PTR, AUM, PUS))

| ТВ | A 1 A | A la a si the see D | I | ET | C | TR | U | M | U | SP | О | FV | I | IV |
|--------|------------|---------------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 1 B | AlgorithmA | AlgorithmB | A12 | p | A12 | р | A12 | p | A12 | p | A12 | р | A12 | p |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.05 | < 0.5 | < 0.05 | < 0.5 | < 0.05 | >0.5 | < 0.01 |
| TB010 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 10010 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 |
| | MoCell | CellDE | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 |
| TB020 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 10020 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 |
| | MoCell | CellDE | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.05 | >0.5 | >0.05 |
| TB030 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 10030 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 |
| TB040 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.05 | >0.9 | < 0.01 |
| 10040 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB050 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |

| | <u> </u> | | F | ET | С | TR | I | M | I | SP | 0 | FV | F | IV |
|---------|------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| TB | AlgorithmA | AlgorithmB | A12 | p | A12 | р | A12 | p | A12 | р | A12 | p | A12 | р |
| | NSGA2 | MoCell | < 0.5 | <0.01 | >0.5 | <0.01 | <0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | <0.01 | >0.9 | <0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | <0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TTD0 60 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| TB060 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB070 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 00/0 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB080 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB090 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0090 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB100 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 1 100 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

TABLE 25. Rank Results for each Multi-Objective Algorithms (AW1, f(PET, PTR, AUM, PUS))

| ТВ | Metric | | Rai | nk | | | Confic | lence | |
|--------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 1 D | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE |
| | ET | 3 | 1 | 4 | 2 | 30% | 10% | 40% | 20% |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| TB010 | UM | 2 | 1 | 3 | 4 | 20% | 10% | 30% | 40% |
| 1 0010 | USP | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | OFV | 2 | 2 | 3 | 1 | 25% | 25% | 38% | 12% |
| | HV | 3 | 2 | 2 | 1 | 38% | 25% | 25% | 12% |
| | ET | 2 | 1 | 3 | 1 | 29% | 14% | 43% | 14% |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| TB020 | UM | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% |
| 1 0020 | USP | 4 | 2 | 3 | 1 | 40% | 20% | 30% | 10% |
| | OFV | 3 | 4 | 2 | 1 | 30% | 40% | 20% | 10% |
| | HV | 3 | 2 | 2 | 1 | 38% | 25% | 25% | 12% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| TB030 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| 1 0000 | USP | 3 | 2 | 2 | 1 | 38% | 25% | 25% | 12% |
| | OFV | 3 | 4 | 2 | 1 | 30% | 40% | 20% | 10% |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| TB040 | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |

| TD | M-1 | | Ra | nk | | Confid | lence | | |
|---------|--------|-------|--------|-------|--------|--------|--------|-------|--------|
| TB | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE |
| | USP | 4 | 2 | 3 | 1 | 40% | 20% | 30% | 10% |
| TB040 | OFV | 2 | 4 | 1 | 3 | 20% | 40% | 10% | 30% |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| TB050 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| 1 0000 | USP | 3 | 3 | 2 | 1 | 33% | 33% | 22% | 11% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| TB060 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| 1 0000 | USP | 3 | 3 | 2 | 1 | 33% | 33% | 22% | 11% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 4 | 2 | 3 | 1 | 40% | 20% | 30% | 10% |
| TB070 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| 1 D07 U | USP | 3 | 3 | 2 | 1 | 33% | 33% | 22% | 11% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 2 | 3 | 1 | 25% | 25% | 38% | 12% |
| TB080 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| 1 0000 | USP | 3 | 4 | 2 | 1 | 30% | 40% | 20% | 10% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 3 | 2 | 2 | 1 | 38% | 25% | 25% | 12% |
| TB090 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| 1 0090 | USP | 3 | 4 | 2 | 1 | 30% | 40% | 20% | 10% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% |
| TB100 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| 1 D100 | USP | 3 | 4 | 2 | 1 | 30% | 40% | 20% | 10% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |

A.2.6 Problem 6

This section describes the results for prioritization problem f(PET, PTR, AUM, ANU).

TABLE 26. Results for the Kruskal-Wallis Test among Multi-Objective Algorithms (AW1, f(PET, PTR, AUM, ANU))

| TB | Metric | ChiSq | DF | p |
|-------|--------|----------|----|--------|
| | ET | 1764.18 | 3 | < 0.01 |
| | CTR | 4593.89 | 3 | < 0.01 |
| TB010 | UM | 7618.38 | 3 | < 0.01 |
| 10010 | NU | 6558.01 | 3 | < 0.01 |
| | OFV | 1245.26 | 3 | < 0.01 |
| | HV | 311.91 | 3 | < 0.01 |
| | ET | 1772.98 | 3 | < 0.01 |
| | CTR | 8072.03 | 3 | < 0.01 |
| TB020 | UM | 16005.9 | 3 | < 0.01 |
| | NU | 10881.09 | 3 | < 0.01 |
| | OFV | 413.5 | 3 | < 0.01 |

| TB | Metric | ChiSq | DF | p |
|--------|--------|----------|----|--------|
| TB020 | HV | 322.55 | 3 | < 0.01 |
| | ET | 3829 | 3 | < 0.01 |
| | CTR | 7675.22 | 3 | < 0.01 |
| TD020 | UM | 16734.77 | 3 | < 0.01 |
| TB030 | NU | 12032.63 | 3 | < 0.01 |
| | OFV | 3136.79 | 3 | < 0.01 |
| | HV | 308.83 | 3 | < 0.01 |
| | ET | 4405.2 | 3 | < 0.01 |
| | CTR | 7720.82 | 3 | < 0.01 |
| TB040 | UM | 16936.03 | 3 | < 0.01 |
| 1 DU4U | NU | 12431.03 | 3 | < 0.01 |
| | OFV | 3839.47 | 3 | < 0.01 |
| | HV | 319.13 | 3 | < 0.01 |
| | ET | 6934.64 | 3 | < 0.01 |
| | CTR | 5512.03 | 3 | < 0.01 |
| TB050 | UM | 16632.38 | 3 | < 0.01 |
| 1 0000 | NU | 14445.36 | 3 | < 0.01 |
| | OFV | 8632 | 3 | < 0.01 |
| | HV | 323.61 | 3 | < 0.01 |
| | ET | 7262.75 | 3 | < 0.01 |
| | CTR | 5149.9 | 3 | < 0.01 |
| TDOCO | UM | 17071.86 | 3 | < 0.01 |
| TB060 | NU | 15071.38 | 3 | < 0.01 |
| | OFV | 9182.83 | 3 | < 0.01 |
| | HV | 326.71 | 3 | < 0.01 |
| | ET | 7795.92 | 3 | < 0.01 |
| | CTR | 4508.42 | 3 | < 0.01 |
| TB070 | UM | 17036.82 | 3 | < 0.01 |
| 1 0070 | NU | 15833.48 | 3 | < 0.01 |
| | OFV | 9768.75 | 3 | < 0.01 |
| | HV | 330.08 | 3 | < 0.01 |
| | ET | 8804.58 | 3 | < 0.01 |
| | CTR | 3933.67 | 3 | < 0.01 |
| TB080 | UM | 17480.82 | 3 | < 0.01 |
| 1 0000 | NU | 16415.63 | 3 | < 0.01 |
| | OFV | 10778.7 | 3 | < 0.01 |
| | HV | 347.75 | 3 | < 0.01 |
| | ET | 7836.56 | 3 | < 0.01 |
| | CTR | 3749.19 | 3 | < 0.01 |
| TB090 | UM | 17199.18 | 3 | < 0.01 |
| 15070 | NU | 17495.25 | 3 | < 0.01 |
| | OFV | 9361.4 | 3 | < 0.01 |
| | HV | 343.1 | 3 | < 0.01 |
| | ET | 8046.53 | 3 | < 0.01 |
| | CTR | 3653.41 | 3 | < 0.01 |
| TB100 | UM | 15623.16 | 3 | < 0.01 |
| 15100 | NU | 19301.74 | 3 | < 0.01 |
| | OFV | 9051.11 | 3 | < 0.01 |
| | HV | 353.03 | 3 | < 0.01 |

TABLE 27. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics among Multi-Objective Algorithms (AW1, f(PET, PTR, AUM, ANU))

| TB AlgorithmA A | | AlgorithmB | F | ET | C | TR | U | M | N | IU | 0 | FV | Н | IV |
|-----------------|-----------|------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 10 | Aigonumia | Aigoritimi | A12 | p |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| TB010 | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| 10010 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |

| TB | | p <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 |
|--|--|--|
| TB010 | | <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 |
| NSGA2 MoCell Co.5 Co.01 Co | | <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 |
| TB020 | 5 | <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 |
| TB020 | | <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 |
| MoCell SPEA2 >0.5 <0.01 <0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0 | | <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 |
| MoCell CellDE <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 < | | <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 |
| SPEA2 CelIDE <0.5 <0.01 <0.5 <0.01 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0.00 <0.5 <0 | | <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 |
| NSGA2 | 1 >0.5 < 1 <0.5 < 1 <0.5 < 1 <0.7 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 < 1 <0.1 <0. | <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 |
| TB030 | | <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 |
| TB030 | >0.9 < | <0.01 <0.01 <0.01 <0.01 <0.01 |
| MoCell SPEA2 So.5 Co.01 Co.5 Co.01 So.5 Co.01 So.5 Co.01 So.5 Co.01 SPEA2 CellDE Co.5 Co.01 So.5 Co.01 Co.5 Co.01 | \(< 0.1 \) \(< \) \(< 0.5 \) \(< \) \(< 0.5 \) \(< 0.1 \) \(< 0.1 \) \(< 0.1 \) \(< 0.9 \) \(< 0.1 \) \(< 0.9 \) \(< 0.1 \) \(< 0.9 \) \(< 0.9 \) \(< 0.1 \) | <0.01 <0.01 <0.01 <0.01 |
| MoCell CellDE <0.5 <0.01 >0.5 <0.01 <0.5 <0.01 >0.5 >0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 | 1 >0.9 < 1 >0.9 < 1 >0.5 < 1 <0.1 < 1 >0.9 < | <0.01 <0.01 <0.01 |
| SPEA2 CellDE <0.5 <0.01 >0.5 <0.01 <0.1 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0 | 1 >0.9 < 1 >0.5 < 1 <0.1 < 1 >0.9 < | <0.01 <0.01 |
| NSGA2 | 1 >0.5 < 1 <0.1 < 1 >0.9 < | < 0.01 |
| NSGA2 SPEA2 SO.5 SO.01 SO.5 SO.01 SO.5 SO.01 SO.5 SO.01 SO.5 SO.00 SO.5 SO.01 SO.5 SO.00 SO.01 SO.5 SO.00 SO.5 SO.01 SO.5 SO. | 1 <0.1 < | |
| TB040 | 1 >0.9 < | |
| MoCell SPEA2 SO.5 SO.01 SO.5 SO.01 SO.5 SO.01 SO.5 SO.01 SO.5 SO.00 SPEA2 CellDE SPEA2 SPEA2 SO.01 SO.5 | | < 0.01 |
| MoCell CellDE <0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 < | <0.1 | < 0.01 |
| TB050 | | <0.01 <0.01 |
| TB050 NSGA2 NSGA2 SPEA2 SPEA2 SO.5 SO.01 SPEA2 SO.5 SPEA2 SO.01 SPEA2 SPEA2 SO.01 SO.01 SPEA2 SPEA2 SO.01 SO | | < 0.01 |
| TB050 | | < 0.01 |
| TB050 | | < 0.01 |
| MoCell SPEA2 >0.5 <0.01 <0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0 | | < 0.01 |
| MoCell CellDE <0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 < | | < 0.01 |
| SPEA2 CellDE <0.5 <0.01 >0.5 <0.01 <0.1 <0.01 <0.01 <0.01 <0.5 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 <0.05 <0.00 | | < 0.01 |
| NSGA2 MoCell <0.5 <0.01 <0.5 <0.01 >0.5 >0.05 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0 | | < 0.01 |
| TB060 | | < 0.01 |
| TB060 | | < 0.01 |
| MoCell SPEA2 >0.5 <0.01 <0.5 <0.01 >0.5 <0.01 >0.9 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 >0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0 | | < 0.01 |
| MoCell CellDE <0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 | | < 0.01 |
| SPEA2 CelIDE <0.5 <0.01 >0.5 <0.01 <0.1 <0.01 <0.01 <0.01 <0.05 <0.00 NSGA2 MoCell <0.5 | | < 0.01 |
| NSGA2 MoCell <0.5 <0.01 <0.5 <0.05 >0.5 <0.05 <0.01 <0.5 <0.0 | | < 0.01 |
| | | < 0.01 |
| | | < 0.01 |
| NSGA2 CellDF < 0.5 < 0.01 > 0.5 < 0.01 < 0.5 < 0.01 < 0.5 < 0.01 < 0.5 < 0.01 | | < 0.01 |
| TB070 MoCell SPEA2 >0.5 <0.01 <0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0. | | < 0.01 |
| MoCell CellDE <0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 | | < 0.01 |
| SPEA2 CellDE <0.5 <0.01 >0.5 <0.01 <0.1 <0.01 <0.1 <0.01 <0.0 <0.0 < | | < 0.01 |
| NSGA2 MoCell <0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 | 1 >0.5 < | < 0.01 |
| NSGA2 SPEA2 >0.5 <0.01 <0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 | | < 0.01 |
| NSGA2 CellDE <0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 | 1 >0.9 < | < 0.01 |
| TB080 MoCell SPEA2 >0.5 <0.01 <0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0.5 <0.01 >0. | l <0.1 < | < 0.01 |
| MoCell CellDE <0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 | 1 >0.9 < | < 0.01 |
| SPEA2 CellDE <0.5 <0.01 >0.5 <0.01 <0.1 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 < | 1 >0.9 < | < 0.01 |
| NSGA2 MoCell <0.5 <0.01 >0.5 >0.05 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 | 1 >0.5 < | < 0.01 |
| NSGA2 SPEA2 >0.5 <0.01 <0.5 <0.01 >0.5 <0.01 >0.9 <0.01 >0.5 <0.0 | | < 0.01 |
| TB090 NSGA2 CellDE <0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 | 1 >0.9 < | < 0.01 |
| MoCell SPEA2 >0.5 <0.01 <0.5 <0.01 >0.5 <0.01 >0.9 <0.01 >0.5 <0.0 | l <0.1 < | < 0.01 |
| MoCell CellDE <0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.01 <0.5 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0 | L > 0.0 | < 0.01 |
| SPEA2 CellDE <0.5 <0.01 >0.5 <0.01 <0.1 <0.01 <0.01 <0.01 <0.0 <0.0 | | < 0.01 |
| NSGA2 MoCell <0.5 <0.01 >0.5 >0.05 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.00 | 1 >0.9 < | < 0.01 |
| NSGA2 SPEA2 >0.5 <0.01 <0.5 <0.01 >0.5 <0.01 >0.9 <0.01 >0.5 <0.0 | 1 >0.9 < | < 0.01 |
| TB100 NSGA2 CellDE <0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.01 <0.5 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0. | 1 >0.9 < 1 >0.5 < 1 <0.1 < | |
| MoCell SPEA2 >0.5 <0.01 <0.5 <0.01 >0.5 <0.01 >0.9 <0.01 >0.5 <0.0 | 1 >0.9 < 1 >0.5 < 1 <0.1 < 1 >0.9 < | < 0.01 |
| MoCell CellDE <0.5 <0.01 >0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 <0.5 <0.01 | >0.9 < | <0.01 <0.01 |
| SPEA2 CellDE <0.5 <0.01 >0.5 <0.01 <0.1 <0.01 <0.01 <0.01 <0.05 <0.00 | 1 >0.9 < 1 >0.5 < 1 <0.1 < 1 >0.9 < 1 <0.1 < 1 >0.9 < | < 0.01 |

TABLE 28. Rank Results for each Multi-Objective Algorithms (AW1, f(PET, PTR, AUM, ANU))

| | | | Rai | nk | | Confidence | | | | | | |
|--------|--------|-------|--------|-------|--------|------------|--------|-------|--------|--|--|--|
| TB | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE | | | |
| | ET | 3 | 1 | 4 | 2 | 30% | 10% | 40% | 20% | | | |
| | CTR | 2 | 2 | 3 | 1 | 25% | 25% | 38% | 12% | | | |
| TD010 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| TB010 | NU | 3 | 4 | 1 | 2 | 30% | 40% | 10% | 20% | | | |
| | OFV | 3 | 4 | 2 | 1 | 30% | 40% | 20% | 10% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 2 | 3 | 4 | 1 | 20% | 30% | 40% | 10% | | | |
| TD020 | UM | 3 | 2 | 1 | 4 | 30% | 20% | 10% | 40% | | | |
| TB020 | NU | 2 | 4 | 1 | 3 | 20% | 40% | 10% | 30% | | | |
| | OFV | 1 | 3 | 1 | 2 | 14% | 43% | 14% | 29% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 2 | 3 | 4 | 1 | 20% | 30% | 40% | 10% | | | |
| TDOO | UM | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | | |
| TB030 | NU | 2 | 3 | 1 | 3 | 22% | 33% | 11% | 33% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 2 | 3 | 4 | 1 | 20% | 30% | 40% | 10% | | | |
| TD040 | UM | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | | |
| TB040 | NU | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 2 | 3 | 4 | 1 | 20% | 30% | 40% | 10% | | | |
| TB050 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| 1 0000 | NU | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 2 | 3 | 4 | 1 | 20% | 30% | 40% | 10% | | | |
| TB060 | UM | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | | |
| 1 0000 | NU | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 2 | 3 | 4 | 1 | 20% | 30% | 40% | 10% | | | |
| TB070 | UM | 3 | 2 | 1 | 4 | 30% | 20% | 10% | 40% | | | |
| 1 0070 | NU | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| TB080 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| 1 0000 | NU | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 2 | 2 | 3 | 1 | 25% | 25% | 38% | 12% | | | |
| TPOOO | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| TB090 | NU | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |

| ТВ | Metric | | Rai | ık | | Confidence | | | | | |
|-------|--------|-------|--------|-------|--------|------------|--------|-------|--------|--|--|
| 10 | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 2 | 2 | 3 | 1 | 25% | 25% | 38% | 12% | | |
| TB100 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| 10100 | NU | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |

A.2.7 Problem 7

This section describes the results for prioritization problem f(PET, PTR, AUM, PUU).

TABLE 29. Results for the Kruskal-Wallis Test among Multi-Objective Algorithms (AW1, f(PET, PTR, AUM, PUU))

| TB | Metric | ChiSq | DF | p |
|---------|--------|----------|----|--------|
| | ET | 4733.9 | 3 | < 0.01 |
| | CTR | 8477.29 | 3 | < 0.01 |
| TD010 | UM | 8940.23 | 3 | < 0.01 |
| TB010 | NUU | 8581.67 | 3 | < 0.01 |
| | OFV | 6493.22 | 3 | < 0.01 |
| | HV | 248.35 | 3 | < 0.01 |
| | ET | 11748.7 | 3 | < 0.01 |
| | CTR | 12328.77 | 3 | < 0.01 |
| TD000 | UM | 15417.7 | 3 | < 0.01 |
| TB020 | NUU | 12552.5 | 3 | < 0.01 |
| | OFV | 5889.18 | 3 | < 0.01 |
| | HV | 270.92 | 3 | < 0.01 |
| | ET | 11479.12 | 3 | < 0.01 |
| | CTR | 11994.87 | 3 | < 0.01 |
| TTD020 | UM | 18136.47 | 3 | < 0.01 |
| TB030 | NUU | 12337.27 | 3 | < 0.01 |
| | OFV | 2058.67 | 3 | < 0.01 |
| | HV | 268.29 | 3 | < 0.01 |
| | ET | 13442.26 | 3 | < 0.01 |
| | CTR | 11379.27 | 3 | < 0.01 |
| TTD0 40 | UM | 19658.46 | 3 | < 0.01 |
| TB040 | NUU | 11654.87 | 3 | < 0.01 |
| | OFV | 980.37 | 3 | < 0.01 |
| | HV | 289.48 | 3 | < 0.01 |
| | ET | 16858.46 | 3 | < 0.01 |
| | CTR | 9455.16 | 3 | < 0.01 |
| TROFO | UM | 22018.79 | 3 | < 0.01 |
| TB050 | NUU | 9988.89 | 3 | < 0.01 |
| | OFV | 2995.11 | 3 | < 0.01 |
| | HV | 320.25 | 3 | < 0.01 |
| | ET | 16186.81 | 3 | < 0.01 |
| | CTR | 8439.27 | 3 | < 0.01 |
| TB060 | UM | 22504.49 | 3 | < 0.01 |
| 1 DUOU | NUU | 8859.32 | 3 | < 0.01 |
| | OFV | 5585.71 | 3 | < 0.01 |
| | HV | 319.11 | 3 | < 0.01 |
| | ET | 17864.64 | 3 | < 0.01 |
| | CTR | 7614.74 | 3 | < 0.01 |
| TB070 | UM | 22545.4 | 3 | < 0.01 |
| 1 DU/U | NUU | 8119.05 | 3 | < 0.01 |
| | OFV | 9428.79 | 3 | < 0.01 |
| | HV | 325.75 | 3 | < 0.01 |
| TB080 | ET | 17390.06 | 3 | < 0.01 |
| 1 0000 | CTR | 7954.08 | 3 | < 0.01 |

| ТВ | Metric | ChiSq | DF | p |
|--------|--------|----------|----|--------|
| | UM | 23437.45 | 3 | < 0.01 |
| TB080 | NUU | 8444.76 | 3 | < 0.01 |
| 1 0000 | OFV | 10966.55 | 3 | < 0.01 |
| | HV | 336.57 | 3 | < 0.01 |
| | ET | 16836.72 | 3 | < 0.01 |
| | CTR | 7710.76 | 3 | < 0.01 |
| TB090 | UM | 23961.86 | 3 | < 0.01 |
| 1 0090 | NUU | 8397.5 | 3 | < 0.01 |
| | OFV | 12239.73 | 3 | < 0.01 |
| | HV | 339.42 | 3 | < 0.01 |
| | ET | 15812.23 | 3 | < 0.01 |
| | CTR | 6755.84 | 3 | < 0.01 |
| TB100 | UM | 26878.67 | 3 | < 0.01 |
| 10100 | NUU | 7129.24 | 3 | < 0.01 |
| | OFV | 13592.67 | 3 | < 0.01 |
| | HV | 336.74 | 3 | < 0.01 |

TABLE 30. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics among Multi-Objective Algorithms (AW1, f(PET, PTR, AUM, PUU))

| ТВ | AlgorithmA | AlgorithmB | | ET | С | TR | ι | M | N | UU | О | FV | ŀ | ΗV |
|--------|------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 1 D | AigorithmA | Aigorithmb | A12 | р | A12 | p | A12 | p | A12 | р | A12 | р | A12 | р |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.05 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| TB010 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 10010 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | MoCell | CellDE | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| TB020 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 10020 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 |
| TB030 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 10030 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 |
| TB040 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 DU40 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB050 | NSGA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 10000 | MoCell | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB060 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 D000 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |

| TED | A1 '-1 A | A1 '41 D | I | ET | С | TR | U | M | N | UU | О | FV | H | IV |
|---------------|------------|------------|-------|--------|------|--------|-------|--------|------|--------|-------|--------|-------|--------|
| TB | AlgorithmA | AlgorithmB | A12 | р | A12 | р | A12 | p | A12 | р | A12 | р | A12 | р |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB070 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0070 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB080 | NSGA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB090 | NSGA2 | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 0090 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB100 | NSGA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 1 1 1 1 1 0 0 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

TABLE 31. Rank Results for each Multi-Objective Algorithms (AW1, f(PET, PTR, AUM, PUU))

| ТВ | Metric | | Rai | nk | | Confidence | | | | | | |
|---------|--------|-------|--------|-------|--------|------------|--------|-------|--------|--|--|--|
| I D | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE | | | |
| | ET | 3 | 1 | 4 | 2 | 30% | 10% | 40% | 20% | | | |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| TB010 | UM | 1 | 2 | 3 | 4 | 10% | 20% | 30% | 40% | | | |
| 1 10010 | NUU | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | OFV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | HV | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| TB020 | UM | 1 | 1 | 2 | 3 | 14% | 14% | 29% | 43% | | | |
| 1 0020 | NUU | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | OFV | 2 | 2 | 3 | 1 | 25% | 25% | 38% | 12% | | | |
| | HV | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| TB030 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| 1 0000 | NUU | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | OFV | 2 | 3 | 4 | 1 | 20% | 30% | 40% | 10% | | | |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| TB040 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| 1 0040 | NUU | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | OFV | 2 | 4 | 3 | 1 | 20% | 40% | 30% | 10% | | | |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| TB050 | CTR | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |

| TD | M-1 | | Rai | nk | | Confidence | | | | | | |
|---------|--------|-------|--------|-------|--------|------------|--------|-------|--------|--|--|--|
| TB | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE | | | |
| | NUU | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| TB050 | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | | |
| TB060 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| 1 DUOU | NUU | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | | |
| TB070 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| 1 007 0 | NUU | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | | |
| TB080 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| 1 0000 | NUU | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | | |
| TB090 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| 1 0000 | NUU | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 3 | 3 | 2 | 1 | 33% | 33% | 22% | 11% | | | |
| TB100 | UM | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| 1 D100 | NUU | 3 | 3 | 2 | 1 | 33% | 33% | 22% | 11% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |

A.2.8 Problem 8

This section describes the results for prioritization problem f(PET, PTR, PUS, ANU).

TABLE 32. Results for the Kruskal-Wallis Test among Multi-Objective Algorithms (AW1, f(PET, PTR, PUS, ANU))

| TB | Metric | ChiSq | DF | p |
|--------|--------|---------|----|--------|
| | ET | 9342.6 | 3 | < 0.01 |
| | CTR | 121.28 | 3 | < 0.01 |
| TB010 | USP | 177.7 | 3 | < 0.01 |
| 10010 | NU | 589.4 | 3 | < 0.01 |
| | OFV | 188.03 | 3 | < 0.01 |
| | HV | 62.37 | 3 | < 0.01 |
| | ET | 6071.64 | 3 | < 0.01 |
| | CTR | 711.91 | 3 | < 0.01 |
| TB020 | USP | 379.92 | 3 | < 0.01 |
| 1 0020 | NU | 956.32 | 3 | < 0.01 |
| | OFV | 1239.7 | 3 | < 0.01 |
| | HV | 177.27 | 3 | < 0.01 |
| | ET | 4826.36 | 3 | < 0.01 |
| | CTR | 317.27 | 3 | < 0.01 |
| TB030 | USP | 32.59 | 3 | < 0.01 |
| | NU | 454.12 | 3 | < 0.01 |
| | OFV | 3253.46 | 3 | < 0.01 |

| ТВ | Metric | ChiSq | DF | p |
|--------|--------|----------|----|--------|
| TB030 | HV | 271.77 | 3 | < 0.01 |
| | ET | 5872.83 | 3 | < 0.01 |
| | CTR | 270.93 | 3 | < 0.01 |
| TB040 | USP | 146.28 | 3 | < 0.01 |
| 1 DU4U | NU | 346.89 | 3 | < 0.01 |
| | OFV | 4448.6 | 3 | < 0.01 |
| | HV | 279.2 | 3 | < 0.01 |
| | ET | 9799.21 | 3 | < 0.01 |
| | CTR | 1925.74 | 3 | < 0.01 |
| TB050 | USP | 741.81 | 3 | < 0.01 |
| 1 0000 | NU | 170.49 | 3 | < 0.01 |
| | OFV | 9919.18 | 3 | < 0.01 |
| | HV | 317.56 | 3 | < 0.01 |
| | ET | 8947.41 | 3 | < 0.01 |
| | CTR | 1633.53 | 3 | < 0.01 |
| TB060 | USP | 609.2 | 3 | < 0.01 |
| 1 0000 | NU | 190.16 | 3 | < 0.01 |
| | OFV | 9037.78 | 3 | < 0.01 |
| | HV | 292.78 | 3 | < 0.01 |
| | ET | 5965.81 | 3 | < 0.01 |
| | CTR | 1350.2 | 3 | < 0.01 |
| TB070 | USP | 382.73 | 3 | < 0.01 |
| 10070 | NU | 258.33 | 3 | < 0.01 |
| | OFV | 5993.69 | 3 | < 0.01 |
| | HV | 274 | 3 | < 0.01 |
| | ET | 4163.67 | 3 | < 0.01 |
| | CTR | 1041.16 | 3 | < 0.01 |
| TB080 | USP | 421.73 | 3 | < 0.01 |
| 12000 | NU | 772.54 | 3 | < 0.01 |
| | OFV | 4169.51 | 3 | < 0.01 |
| | HV | 233.34 | 3 | < 0.01 |
| | ET | 3400.07 | 3 | < 0.01 |
| | CTR | 1068.9 | 3 | < 0.01 |
| TB090 | USP | 275.2 | 3 | <0.01 |
| | NU | 1048.94 | 3 | <0.01 |
| | OFV | 3395.54 | 3 | <0.01 |
| | HV | 225.28 | 3 | <0.01 |
| | ET | 26330.41 | 3 | <0.01 |
| | CTR | 6114.95 | 3 | <0.01 |
| TB100 | USP | 4379.79 | 3 | <0.01 |
| | NU | 19146.76 | 3 | <0.01 |
| | OFV | 26777.5 | 3 | <0.01 |
| | HV | 311.15 | 3 | < 0.01 |

TABLE 33. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics among Multi-Objective Algorithms (AW1, f(PET, PTR, PUS, ANU))

| ТВ | AlgorithmA | AlgorithmB | l I | ET | C | CTR | | USP | | IU | OFV | | HV | |
|-------|-------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 10 | Aiguittilia | Aigoriumb | A12 | p |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.05 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 |
| TB010 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 |
| 10010 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.05 | >0.5 | < 0.01 | >0.5 | < 0.05 | >0.5 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| TB020 | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 |
| | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |

| TED | A1 '-1 A | A1 '41 D | ET | | TR | U | SP | N | NU | О | FV | I | ΙV |
|------------------------|------------|------------|------------|---------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| TB | AlgorithmA | AlgorithmB | A12 p | A12 | р | A12 | р | A12 | р | A12 | р | A12 | р |
| | MoCell | SPEA2 | >0.9 < 0.0 | | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB020 | MoCell | CellDE | <0.1 <0.0 | 1 >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 |
| | SPEA2 | CellDE | <0.1 <0.0 | 1 < 0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | <0.1 <0.0 | | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | <0.5 <0.0 | | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TD020 | NSGA2 | CellDE | <0.1 <0.0 | | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB030 | MoCell | SPEA2 | >0.5 < 0.0 | | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | <0.1 <0.0 | | >0.05 | >0.5 | < 0.01 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | <0.1 <0.0 | | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | <0.1 <0.0 | | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | <0.5 <0.0 | | < 0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.05 | < 0.5 | >0.05 |
| TD040 | NSGA2 | CellDE | <0.1 <0.0 | | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SPEA2 | >0.9 <0.0 | | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | <0.1 <0.0 | | >0.05 | >0.5 | < 0.01 | >0.5 | >0.05 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | <0.1 <0.0 | | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | <0.1 <0.0 | | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 <0.0 | 1 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TD050 | NSGA2 | CellDE | <0.1 <0.0 | | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| TB050 | MoCell | SPEA2 | >0.9 <0.0 | | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | <0.1 <0.0 | | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | <0.1 <0.0 | | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | <0.5 <0.0 | | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 <0.0 | | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TD 0.60 | NSGA2 | CellDE | <0.1 <0.0 | | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB060 | MoCell | SPEA2 | >0.9 <0.0 | | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | <0.1 <0.0 | 1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | <0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | <0.1 <0.0 | | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | <0.5 <0.0 | | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 < 0.0 | | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| ED 0 5 0 | NSGA2 | CellDE | <0.1 <0.0 | | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB070 | MoCell | SPEA2 | >0.5 < 0.0 | 1 >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | <0.1 <0.0 | 1 < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | <0.1 <0.0 | 1 < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | <0.5 <0.0 | 1 < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 |
| | NSGA2 | SPEA2 | >0.5 < 0.0 | 1 >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.05 |
| TDOOO | NSGA2 | CellDE | <0.1 <0.0 | 1 < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB080 | MoCell | SPEA2 | >0.5 < 0.0 | 1 >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | <0.1 <0.0 | | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | <0.1 <0.0 | 1 < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | <0.5 <0.0 | 1 < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | >0.05 |
| | NSGA2 | SPEA2 | >0.5 < 0.0 | 1 >0.5 | >0.05 | < 0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 |
| TROOG | NSGA2 | CellDE | <0.1 <0.0 | 1 < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB090 | MoCell | SPEA2 | >0.5 < 0.0 | 1 >0.5 | < 0.01 | >0.5 | < 0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 |
| | MoCell | CellDE | <0.1 <0.0 | 1 < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | <0.1 <0.0 | 1 < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | <0.5 <0.0 | 1 < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 <0.0 | | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TD100 | NSGA2 | CellDE | <0.1 <0.0 | | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SPEA2 | >0.9 <0.0 | 1 >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | <0.1 <0.0 | 1 >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | <0.1 <0.0 | 1 < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | 1 | I . | <u> </u> | | 1 | - | | 1 | | | 1 | 1 | |

TABLE 34. Rank Results for each Multi-Objective Algorithms (AW1, f(PET, PTR, PUS, ANU))

| | 35.1 | | Ra | nk | | Confidence | | | | | |
|--------|-----------|-------|--------|-------|--------|------------|------------|------------|------------|--|--|
| TB | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 1 | 2 | 1 | 1 | 20% | 40% | 20% | 20% | | |
| TB010 | USP | 3 | 4 | 2 | 1 | 30% | 40% | 20% | 10% | | |
| 1 0010 | NU | 4 | 3 | 2 | 1 | 40% | 30% | 20% | 10% | | |
| | OFV | 2 | 4 | 3 | 1 | 20% | 40% | 30% | 10% | | |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 2 | 3 | 1 | 2 | 25% | 38% | 12% | 25% | | |
| TB020 | USP | 2 | 3 | 1 | 1 | 29% | 43% | 14% | 14% | | |
| 10020 | NU | 3 | 4 | 2 | 1 | 30% | 40% | 20% | 10% | | |
| | OFV | 2 | 4 | 1 | 3 | 20% | 40% | 10% | 30% | | |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% | | |
| | ET | 4 | 2 | 3 | 1 | 40% | 20% | 30% | 10% | | |
| | CTR | 2 | 3 | 1 | 3 | 22% | 33% | 11% | 33% | | |
| TB030 | USP | 1 | 2 | 1 | 1 | 20% | 40% | 20% | 20% | | |
| | NU | 3 | 1 | 2 | 1 | 43% | 14% | 29% | 14% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 4 | 2 | 3 | 1 | 40% | 20% | 30% | 10% | | |
| | CTR | 2 | 3 | 1 | 3 | 22% | 33% | 11% | 33% | | |
| TB040 | USP | 1 | 4 | 2 | 3 | 10% | 40% 25% | 20% | 30% | | |
| | NU OFV | 3 | 2 3 | 1 | 2 | 38% 20% | 30% | 12% | 25% | | |
| | | 2 3 | | 1 | 4 | | 22% | 10% | 40% | | |
| | HV ET | 3 | 2 | 3 | 1 | 33% | | 33% | 11% | | |
| | CTR | | 3 | 4 | 1 | 30% | 20% 30% | 40% | 10% | | |
| | USP | 2 2 | 3 | 1 1 | 3 | 20% 22% | 30% | 10% 11% | 40% 33% | | |
| TB050 | NU | 1 | 3 | 2 | 1 | 14% | 43% | 29% | 14% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 1 | 3 | 2 | 4 | 10% | 30% | 20% | 40% | | |
| | USP | 1 | 3 | 2 | 4 | 10% | 30% | 20% | 40% | | |
| TB060 | NU | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | USP | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% | | |
| TB070 | NU | 1 | 2 | 2 | 3 | 12% | 25% | 25% | 38% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| TDOO | USP | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| TB080 | NU | 1 | 2 | 2 | 3 | 12% | 25% | 25% | 38% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 2 | 2 | 3 | 1 | 25% | 25% | 38% | 12% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% | | |
| TB090 | USP | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% | | |
| 1 DU9U | NU | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 2 | 2 | 2 | 1 | 29% | 29% | 29% | 14% | | |

| ТВ | Metric | | Rai | ık | | Confidence | | | | | | |
|-------|--------|-------|--------|-------|--------|------------|--------|-------|--------|--|--|--|
| 10 | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 2 | 4 | 1 | 3 | 20% | 40% | 10% | 30% | | | |
| TB100 | USP | 2 | 4 | 1 | 3 | 20% | 40% | 10% | 30% | | | |
| 10100 | NU | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |

A.2.9 Problem 9

This section describes the results for prioritization problem f(PET, PTR, PUS, PUU).

TABLE 35. Results for the Kruskal-Wallis Test among Multi-Objective Algorithms (AW1, f(PET, PTR, PUS, PUU))

| TB | Metric | ChiSq | DF | p |
|---------|--------|---------|----|--------|
| | ET | 3124.56 | 3 | < 0.01 |
| | CTR | 303.16 | 3 | < 0.01 |
| TB010 | USP | 67.96 | 3 | < 0.01 |
| 1 DO 10 | NUU | 384.57 | 3 | < 0.01 |
| | OFV | 329.93 | 3 | < 0.01 |
| | HV | 141.16 | 3 | < 0.01 |
| | ET | 2680.52 | 3 | < 0.01 |
| | CTR | 108.44 | 3 | < 0.01 |
| TB020 | USP | 38.06 | 3 | < 0.01 |
| 10020 | NUU | 106.88 | 3 | < 0.01 |
| | OFV | 370.64 | 3 | < 0.01 |
| | HV | 180.57 | 3 | < 0.01 |
| | ET | 2223.45 | 3 | < 0.01 |
| | CTR | 58.31 | 3 | < 0.01 |
| TB030 | USP | 7.68 | 3 | >0.05 |
| 10030 | NUU | 9.59 | 3 | < 0.05 |
| | OFV | 1159.47 | 3 | < 0.01 |
| | HV | 267.58 | 3 | < 0.01 |
| | ET | 1881.93 | 3 | < 0.01 |
| | CTR | 95.27 | 3 | < 0.01 |
| TB040 | USP | 42.58 | 3 | < 0.01 |
| 10040 | NUU | 48.12 | 3 | < 0.01 |
| | OFV | 1318.4 | 3 | < 0.01 |
| | HV | 286.5 | 3 | < 0.01 |
| | ET | 1129.57 | 3 | < 0.01 |
| | CTR | 244.29 | 3 | < 0.01 |
| TB050 | USP | 32.43 | 3 | < 0.01 |
| 10000 | NUU | 104.47 | 3 | < 0.01 |
| | OFV | 1114.42 | 3 | < 0.01 |
| | HV | 331.31 | 3 | < 0.01 |
| | ET | 1040.51 | 3 | < 0.01 |
| | CTR | 137.34 | 3 | < 0.01 |
| TB060 | USP | 33.73 | 3 | < 0.01 |
| 10000 | NUU | 95.41 | 3 | < 0.01 |
| | OFV | 1038.41 | 3 | < 0.01 |
| | HV | 314.48 | 3 | < 0.01 |
| | ET | 1030.89 | 3 | < 0.01 |
| | CTR | 108.5 | 3 | < 0.01 |
| TB070 | USP | 26.06 | 3 | < 0.01 |
| 120.0 | NUU | 84.71 | 3 | < 0.01 |
| | OFV | 1023.51 | 3 | < 0.01 |
| | HV | 325.98 | 3 | < 0.01 |
| TB080 | ET | 865.35 | 3 | < 0.01 |
| 12000 | CTR | 148.16 | 3 | < 0.01 |

| TB | Metric | ChiSq | DF | p |
|--------|--------|--------|----|--------|
| | USP | 29.9 | 3 | < 0.01 |
| TB080 | NUU | 135.9 | 3 | < 0.01 |
| 1 0000 | OFV | 855.2 | 3 | < 0.01 |
| | HV | 303.3 | 3 | < 0.01 |
| | ET | 819.86 | 3 | < 0.01 |
| | CTR | 174.04 | 3 | < 0.01 |
| TB090 | USP | 57.86 | 3 | < 0.01 |
| 1 0090 | NUU | 133.01 | 3 | < 0.01 |
| | OFV | 824 | 3 | < 0.01 |
| | HV | 288.95 | 3 | < 0.01 |
| | ET | 868.4 | 3 | < 0.01 |
| | CTR | 100.09 | 3 | < 0.01 |
| TB100 | USP | 68.35 | 3 | < 0.01 |
| 10100 | NUU | 46.54 | 3 | < 0.01 |
| | OFV | 873.91 | 3 | < 0.01 |
| | HV | 277.79 | 3 | < 0.01 |

TABLE 36. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics among Multi-Objective Algorithms (AW1, f(PET, PTR, PUS, PUU))

| ТВ | Algorithm A | Alaasith m D | I | ET | С | TR | U | SP | N | UU | 0 | FV | I | IV |
|--------|-------------|--------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 1 D | AlgorithmA | AlgorithmB | A12 | p | A12 | p | A12 | р | A12 | p | A12 | p | A12 | р |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.05 |
| TB010 | NSGA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 |
| 10010 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.05 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | >0.05 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB020 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| 10020 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | >0.05 | < 0.5 | < 0.01 |
| TB030 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10030 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.05 | >0.5 | < 0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.05 | < 0.5 | >0.05 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.05 | >0.5 | < 0.01 | < 0.5 | >0.05 |
| TB040 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10040 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | >0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB050 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.05 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB060 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

| | | | I | ET | С | TR | U | SP | N | UU | O | FV | F | IV |
|--------|------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| TB | AlgorithmA | AlgorithmB | A12 | р |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB070 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10070 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | >0.05 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | >0.05 |
| TB080 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | >0.05 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB090 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0090 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | >0.05 |
| TB100 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10100 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

TABLE 37. Rank Results for each Multi-Objective Algorithms (AW1, f(PET, PTR, PUS, PUU))

| ТВ | Metric | | Rai | nk | | Confidence | | | | | |
|--------|--------|-------|--------|-------|--------|------------|--------|-------|--------|--|--|
| 1 D | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 3 | 4 | 2 | 1 | 30% | 40% | 20% | 10% | | |
| TB010 | USP | 2 | 2 | 1 | 1 | 33% | 33% | 17% | 17% | | |
| 1 0010 | NUU | 2 | 3 | 1 | 1 | 29% | 43% | 14% | 14% | | |
| | OFV | 2 | 3 | 1 | 1 | 29% | 43% | 14% | 14% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| TB020 | USP | 2 | 2 | 2 | 1 | 29% | 29% | 29% | 14% | | |
| 1 D020 | NUU | 2 | 3 | 1 | 1 | 29% | 43% | 14% | 14% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | CTR | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | |
| TB030 | USP | 1 | 2 | 1 | 2 | 17% | 33% | 17% | 33% | | |
| 1 0030 | NUU | 1 | 2 | 1 | 2 | 17% | 33% | 17% | 33% | | |
| | OFV | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| | ET | 4 | 2 | 3 | 1 | 40% | 20% | 30% | 10% | | |
| | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| TB040 | USP | 2 | 2 | 1 | 2 | 29% | 29% | 14% | 29% | | |
| 1 DU4U | NUU | 2 | 3 | 1 | 3 | 22% | 33% | 11% | 33% | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | |
| TB050 | CTR | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | |
| | USP | 2 | 2 | 1 | 2 | 29% | 29% | 14% | 29% | | |

| TD | Matri | | Rai | nk | | Confidence | | | | | | |
|---------|--------|-------|--------|-------|--------|------------|--------|-------|--------|--|--|--|
| TB | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE | | | |
| | NUU | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | | |
| TB050 | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% | | | |
| TB060 | USP | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | | |
| 1 DUOU | NUU | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% | | | |
| TB070 | USP | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% | | | |
| 1 D07 0 | NUU | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% | | | |
| TB080 | USP | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% | | | |
| 1 0000 | NUU | 1 | 1 | 1 | 2 | 20% | 20% | 20% | 40% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | | |
| TB090 | USP | 2 | 2 | 1 | 2 | 29% | 29% | 14% | 29% | | | |
| 1 D090 | NUU | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% | | | |
| | CTR | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | | |
| TB100 | USP | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% | | | |
| 1 0100 | NUU | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% | | | |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% | | | |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% | | | |

A.2.10 Problem 10

This section describes the results for prioritization problem f(PET, PTR, ANU, PUU).

TABLE 38. Results for the Kruskal-Wallis Test among Multi-Objective Algorithms (AW1, f(PET, PTR, ANU, PUU))

| TB | Metric | ChiSq | DF | p |
|--------|--------|----------|----|--------|
| | ET | 10860.38 | 3 | < 0.01 |
| | CTR | 283.83 | 3 | < 0.01 |
| TB010 | NU | 243.01 | 3 | < 0.01 |
| 10010 | NUU | 194.95 | 3 | < 0.01 |
| | OFV | 225.93 | 3 | < 0.01 |
| | HV | 79.74 | 3 | < 0.01 |
| | ET | 6854.74 | 3 | < 0.01 |
| | CTR | 98.42 | 3 | < 0.01 |
| TB020 | NU | 727.91 | 3 | < 0.01 |
| 1 0020 | NUU | 313.31 | 3 | < 0.01 |
| | OFV | 376.19 | 3 | < 0.01 |
| | HV | 193.43 | 3 | < 0.01 |
| | ET | 5972.91 | 3 | < 0.01 |
| | CTR | 435.74 | 3 | < 0.01 |
| TB030 | NU | 265.06 | 3 | < 0.01 |
| | NUU | 411.92 | 3 | < 0.01 |
| | OFV | 3379.61 | 3 | < 0.01 |

| TB | Metric | ChiSq | DF | p |
|---------|--------|----------|----|--------|
| TB030 | HV | 272.27 | 3 | < 0.01 |
| | ET | 6258.67 | 3 | < 0.01 |
| | CTR | 423.84 | 3 | < 0.01 |
| TB040 | NU | 190.2 | 3 | < 0.01 |
| 1 DU4U | NUU | 333.86 | 3 | < 0.01 |
| | OFV | 4003.92 | 3 | < 0.01 |
| | HV | 297.04 | 3 | < 0.01 |
| | ET | 10495.55 | 3 | < 0.01 |
| | CTR | 2581.52 | 3 | < 0.01 |
| TB050 | NU | 565.27 | 3 | < 0.01 |
| 1 0000 | NUU | 1840.42 | 3 | < 0.01 |
| | OFV | 10574.05 | 3 | < 0.01 |
| | HV | 328.59 | 3 | < 0.01 |
| | ET | 8683.48 | 3 | < 0.01 |
| | CTR | 2371.61 | 3 | < 0.01 |
| TB060 | NU | 353.35 | 3 | < 0.01 |
| 1 DUOU | NUU | 1793.97 | 3 | < 0.01 |
| | OFV | 8680.85 | 3 | < 0.01 |
| | HV | 311.57 | 3 | < 0.01 |
| | ET | 5346.74 | 3 | < 0.01 |
| | CTR | 1243.37 | 3 | < 0.01 |
| TB070 | NU | 139.68 | 3 | < 0.01 |
| 1 D07 U | NUU | 1079.2 | 3 | < 0.01 |
| | OFV | 5407.61 | 3 | < 0.01 |
| | HV | 276.29 | 3 | < 0.01 |
| | ET | 4583.76 | 3 | < 0.01 |
| | CTR | 1257.47 | 3 | < 0.01 |
| TB080 | NU | 1059.68 | 3 | < 0.01 |
| 1 0000 | NUU | 960.97 | 3 | < 0.01 |
| | OFV | 4592.6 | 3 | < 0.01 |
| | HV | 241.17 | 3 | < 0.01 |
| | ET | 3743.28 | 3 | < 0.01 |
| | CTR | 1204.04 | 3 | < 0.01 |
| TB090 | NU | 1239.21 | 3 | < 0.01 |
| 10070 | NUU | 1187.55 | 3 | < 0.01 |
| | OFV | 3767.03 | 3 | < 0.01 |
| | HV | 236.65 | 3 | < 0.01 |
| | ET | 25741.51 | 3 | < 0.01 |
| | CTR | 7091.26 | 3 | < 0.01 |
| TB100 | NU | 18532.45 | 3 | < 0.01 |
| 15100 | NUU | 6580.68 | 3 | < 0.01 |
| | OFV | 26271.49 | 3 | < 0.01 |
| | HV | 325.11 | 3 | < 0.01 |

TABLE 39. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics among Multi-Objective Algorithms (AW1, f(PET, PTR, ANU, PUU))

| ТВ | AlgorithmA | AlgorithmB | F | ET | CTR | | NU | | NUU | | OFV | | HV | |
|-------|------------|-------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 10 | AigoriumiA | Aigontillio | A12 | p |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | >0.05 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 |
| TB010 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 |
| 10010 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.05 |
| | MoCell | CellDE | < 0.5 | < 0.01 | < 0.5 | < 0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| TB020 | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 |
| | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |

| TD | A 1: 11 A | A 1: (1 D | I | ET | С | TR | N | NU | N | UU | О | FV | H | IV |
|--------|------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| TB | AlgorithmA | AlgorithmB | A12 | р |
| | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB020 | MoCell | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TDOO | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB030 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 |
| TP040 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB040 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB050 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB060 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 1 0000 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | < 0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | >0.05 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB070 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10070 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.05 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | >0.05 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB080 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10000 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | >0.05 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TB090 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| 10090 | MoCell | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | >0.05 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | MoCell | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | NSGA2 | SPEA2 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | < 0.5 | < 0.01 |
| TD100 | NSGA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | <0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| TB100 | MoCell | SPEA2 | >0.9 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.5 | < 0.01 | >0.9 | < 0.01 | <0.1 | < 0.01 |
| | MoCell | CellDE | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |
| | SPEA2 | CellDE | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | < 0.5 | < 0.01 | < 0.1 | < 0.01 | >0.9 | < 0.01 |

TABLE 40. Rank Results for each Multi-Objective Algorithms (AW1, f(PET, PTR, ANU, PUU))

| | 25.4 | Rank | | | Confidence | | | | |
|--------|--------|-------|--------|-------|------------|-------|--------|-------|--------|
| TB | Metric | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| TB010 | CTR | 2 | 2 | 1 | 3 | 25% | 25% | 12% | 38% |
| | NU | 3 | 4 | 2 | 1 | 30% | 40% | 20% | 10% |
| | NUU | 3 | 3 | 1 | 2 | 33% | 33% | 11% | 22% |
| | OFV | 3 | 3 | 1 | 2 | 33% | 33% | 11% | 22% |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 1 | 4 | 2 | 3 | 10% | 40% | 20% | 30% |
| TR020 | NU | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% |
| TB020 | NUU | 3 | 4 | 2 | 1 | 30% | 40% | 20% | 10% |
| | OFV | 1 | 3 | 2 | 4 | 10% | 30% | 20% | 40% |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 4 | 1 | 3 | 20% | 40% | 10% | 30% |
| TB030 | NU | 4 | 2 | 3 | 1 | 40% | 20% | 30% | 10% |
| 1 0000 | NUU | 2 | 4 | 1 | 3 | 20% | 40% | 10% | 30% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 4 | 1 | 3 | 20% | 40% | 10% | 30% |
| TB040 | NU | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| 10040 | NUU | 2 | 4 | 1 | 3 | 20% | 40% | 10% | 30% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 3 | 1 | 33% | 22% | 33% | 11% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 1 | 3 | 2 | 4 | 10% | 30% | 20% | 40% |
| TB050 | NU | 3 | 4 | 1 | 2 | 30% | 40% | 10% | 20% |
| 12000 | NUU | 1 | 3 | 2 | 3 | 11% | 33% | 22% | 33% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| TB060 | NU | 1 | 2 | 1 | 2 | 17% | 33% | 17% | 33% |
| | NUU | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% |
| TB070 | NU | 1 | 3 | 2 | 4 | 10% | 30% | 20% | 40% |
| | NUU | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| TB080 | CTR | 1 | 2 | 1 | 3 | 14% | 29% | 14% | 43% |
| | NU | 1 | 2 | 2 | 3 | 12% | 25% | 25% | 38% |
| | NUU | 1 | 3 | 2 | 4 | 10% | 30% | 20% | 40% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| TB090 | CTR | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | NU | 1 | 2 | 2 | 3 | 12% | 25% | 25% | 38% |
| | NUU | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 2 | 2 | 3 | 1 | 25% | 25% | 38% | 12% |

| ТВ | Metric | Rank | | | Confidence | | | | |
|-------|--------|-------|--------|-------|------------|-------|--------|-------|--------|
| | | NSGA2 | MoCell | SPEA2 | CellDE | NSGA2 | MoCell | SPEA2 | CellDE |
| TB100 | ET | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |
| | CTR | 2 | 4 | 1 | 3 | 20% | 40% | 10% | 30% |
| | NU | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | NUU | 2 | 4 | 1 | 3 | 20% | 40% | 10% | 30% |
| | OFV | 2 | 3 | 1 | 4 | 20% | 30% | 10% | 40% |
| | HV | 3 | 2 | 4 | 1 | 30% | 20% | 40% | 10% |

A.3 Experiment Results for RQ4

This section describes the results for Experiment Results for RQ4.

 ${\it TABLE~41} \\ {\it Results~for~the~Kruskal-Wallis~Test~among~Test~Case~Prioritization~Problems~(AW1)} \\$

| Metric | ChiSq | DF | p |
|--------|----------|----|--------|
| ANOU | 55751.20 | 10 | < 0.01 |

TABLE 42. Results for the Mann-Whitney U Test and Vargha and Delaney Statistics among Test Case Prioritization Problems (AW1)

| ProblemA | ProblemB | BestAlgorithmA | BestAlgorithmB | A12 | p |
|---------------|----------------|----------------|----------------|-------|--------|
| ET_CTR_UM | ET_CTR_USP | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM | ET_CTR_NU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM | ET_CTR_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM | ET_CTR_UM_USP | SPEA2 | SPEA2 | >0.5 | < 0.01 |
| ET_CTR_UM | ET_CTR_UM_NU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_UM | ET_CTR_UM_NUU | SPEA2 | SPEA2 | < 0.5 | < 0.01 |
| ET_CTR_UM | ET_CTR_USP_NU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM | ET_CTR_USP_NUU | SPEA2 | NSGA2 | >0.9 | < 0.01 |
| ET_CTR_UM | ET_CTR_USP_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM | ET_CTR_NU_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_USP | ET_CTR_NU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_USP | ET_CTR_NUU | SPEA2 | SPEA2 | >0.5 | >0.05 |
| ET_CTR_USP | ET_CTR_UM_USP | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_USP | ET_CTR_UM_NU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_USP | ET_CTR_UM_NUU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_USP | ET_CTR_USP_NU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_USP | ET_CTR_USP_NUU | SPEA2 | NSGA2 | < 0.5 | < 0.01 |
| ET_CTR_USP | ET_CTR_USP_NUU | SPEA2 | SPEA2 | >0.5 | < 0.01 |
| ET_CTR_USP | ET_CTR_NU_NUU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_NU | ET_CTR_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_NU | ET_CTR_UM_USP | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_NU | ET_CTR_UM_NU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_NU | ET_CTR_UM_NUU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_NU | ET_CTR_USP_NU | SPEA2 | SPEA2 | < 0.5 | < 0.01 |
| ET_CTR_NU | ET_CTR_USP_NUU | SPEA2 | NSGA2 | >0.9 | < 0.01 |
| ET_CTR_NU | ET_CTR_USP_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_NU | ET_CTR_NU_NUU | SPEA2 | SPEA2 | < 0.5 | < 0.01 |
| ET_CTR_NUU | ET_CTR_UM_USP | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_NUU | ET_CTR_UM_NU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_NUU | ET_CTR_UM_NUU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_NUU | ET_CTR_USP_NU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_NUU | ET_CTR_USP_NUU | SPEA2 | NSGA2 | < 0.5 | < 0.01 |
| ET_CTR_NUU | ET_CTR_USP_NUU | SPEA2 | SPEA2 | >0.5 | < 0.05 |
| ET_CTR_NUU | ET_CTR_NU_NUU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_UM_USP | ET_CTR_UM_NU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_UM_USP | ET_CTR_UM_NUU | SPEA2 | SPEA2 | < 0.5 | < 0.01 |

| ProblemA | ProblemB | BestAlgorithmA | BestAlgorithmB | A12 | p |
|----------------|----------------|----------------|----------------|-------|--------|
| ET_CTR_UM_USP | ET_CTR_USP_NU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM_USP | ET_CTR_USP_NUU | SPEA2 | NSGA2 | >0.9 | < 0.01 |
| ET_CTR_UM_USP | ET_CTR_USP_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM_USP | ET_CTR_NU_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM_NU | ET_CTR_UM_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM_NU | ET_CTR_USP_NU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM_NU | ET_CTR_USP_NUU | SPEA2 | NSGA2 | >0.9 | < 0.01 |
| ET_CTR_UM_NU | ET_CTR_USP_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM_NU | ET_CTR_NU_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM_NUU | ET_CTR_USP_NU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM_NUU | ET_CTR_USP_NUU | SPEA2 | NSGA2 | >0.9 | < 0.01 |
| ET_CTR_UM_NUU | ET_CTR_USP_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_UM_NUU | ET_CTR_NU_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_USP_NU | ET_CTR_USP_NUU | SPEA2 | NSGA2 | >0.9 | < 0.01 |
| ET_CTR_USP_NU | ET_CTR_USP_NUU | SPEA2 | SPEA2 | >0.9 | < 0.01 |
| ET_CTR_USP_NU | ET_CTR_NU_NUU | SPEA2 | SPEA2 | < 0.5 | < 0.01 |
| ET_CTR_USP_NUU | ET_CTR_NU_NUU | NSGA2 | SPEA2 | < 0.1 | < 0.01 |
| ET_CTR_USP_NUU | ET_CTR_NU_NUU | SPEA2 | SPEA2 | < 0.1 | < 0.01 |