

Table 1: Mean and standard deviation values of MIGD obtained by five algorithms

Problems	(n_t, τ_t)	DNSGAIIA	DNSGAII B	RND	MOEADKF	NHSS
DF1	(10, 5)	4.608e-2(4.167e-3)‡	1.027e-1(7.737e-3)‡	1.446e-1(1.416e-2)‡	6.226e-2(7.468e-3)‡	1.151e-1(7.280e-3)‡
	(10, 10)	3.315e-2(2.882e-3)‡	1.004e-1(6.141e-3)‡	4.491e-2(6.014e-3)‡	1.913e-2(1.861e-3)‡	2.802e-2(1.488e-3)‡
	(10, 20)	2.706e-2(2.848e-3)‡	8.988e-2(7.831e-3)‡	1.117e-2(9.251e-4)‡	6.773e-3(4.247e-4)‡	9.300e-3(2.143e-4)‡
DF2	(10, 5)	2.831e-2(2.409e-3)‡	3.906e-2(5.737e-3)‡	1.163e-1(1.251e-2)‡	8.715e-2(3.515e-3)‡	1.179e-1(6.826e-3)‡
	(10, 10)	1.805e-2(1.092e-3)‡	1.730e-2(2.777e-3)‡	4.080e-2(3.467e-3)‡	2.974e-2(1.395e-3)‡	3.286e-2(1.156e-3)‡
	(10, 20)	1.229e-2(6.205e-4)‡	8.862e-3(1.653e-3)‡	1.066e-2(1.003e-3)‡	8.612e-3(4.682e-4)‡	9.219e-3(2.779e-4)‡
DF3	(10, 5)	2.316e-1(8.395e-2)‡	4.003e-1(2.598e-1)‡	2.039e+0(1.652e-3)‡	4.852e-2(9.969e-3)‡	8.381e-2(1.567e-2)‡
	(10, 10)	1.372e-1(5.522e-2)‡	2.940e-1(2.271e-1)‡	2.031e+0(2.459e-4)‡	2.190e-2(3.656e-3)‡	3.738e-2(8.672e-3)‡
	(10, 20)	8.035e-2(2.713e-2)‡	1.858e-1(1.318e-1)‡	2.029e+0(6.915e-5)‡	9.076e-3(2.238e-3)‡	1.659e-2(3.437e-3)‡
DF4	(10, 5)	2.842e-1(3.212e-2)‡	3.933e-1(2.900e-2)‡	1.246e+0(1.380e-2)‡	1.399e-1(1.387e-2)‡	1.381e-1(6.820e-3)‡
	(10, 10)	1.689e-1(1.094e-2)‡	3.430e-1(2.757e-2)‡	1.211e+0(5.345e-3)‡	1.179e-1(2.090e-3)‡	1.137e-1(2.471e-3)‡
	(10, 20)	1.256e-1(6.054e-3)‡	3.384e-1(1.501e-2)‡	1.203e+0(1.040e-3)‡	1.214e-1(5.773e-4)‡	1.177e-1(5.031e-4)‡
DF5	(10, 5)	1.241e-1(1.236e-2)‡	7.403e-2(1.858e-2)‡	1.323e+0(1.978e-2)‡	2.968e-2(1.510e-3)‡	7.515e-2(4.628e-3)‡
	(10, 10)	9.577e-2(7.921e-3)‡	9.351e-2(2.633e-2)‡	1.233e+0(2.963e-3)‡	1.054e-2(4.281e-4)‡	2.500e-2(6.174e-4)‡
	(10, 20)	6.914e-2(3.564e-3)‡	7.445e-2(3.213e-3)‡	1.210e+0(6.759e-4)‡	5.978e-3(8.049e-5)‡	1.012e-2(1.432e-4)‡
DF6	(10, 5)	1.558e+0(1.639e-1)‡	1.479e+0(1.409e-1)‡	5.954e+0(8.351e-1)‡	2.061e+0(8.144e-1)‡	4.769e+0(3.957e-1)‡
	(10, 10)	7.298e-1(3.204e-1)‡	6.478e-1(2.607e-1)‡	2.442e+0(3.810e-1)‡	1.104e+0(5.541e-1)‡	1.518e+0(2.758e-1)‡
	(10, 20)	3.317e-1(1.075e-1)‡	3.374e-1(7.806e-2)‡	1.835e+0(3.387e-1)‡	9.130e-1(3.021e-1)‡	4.791e-1(1.590e-1)‡
DF7	(10, 5)	7.405e-2(8.621e-2)‡	6.054e-2(7.443e-3)‡	2.222e+0(6.902e-2)‡	1.273e-1(6.562e-3)‡	1.563e-1(2.560e-2)‡
	(10, 10)	2.619e-2(2.131e-3)‡	3.839e-2(1.120e-2)‡	2.078e+0(1.237e-2)‡	1.117e-1(2.965e-3)‡	1.134e-1(3.518e-3)‡
	(10, 20)	2.046e-2(8.815e-4)‡	3.858e-2(1.146e-2)‡	2.046e+0(1.083e-3)‡	1.068e-1(2.256e-3)‡	1.064e-1(3.659e-3)‡
DF8	(10, 5)	6.188e-2(7.186e-3)‡	8.458e-2(2.181e-3)‡	2.989e-2(4.526e-3)‡	2.657e-2(1.209e-3)‡	2.449e-2(1.057e-3)‡
	(10, 10)	5.953e-2(2.508e-3)‡	7.459e-2(3.004e-3)‡	1.885e-2(1.380e-3)‡	1.953e-2(1.050e-3)‡	1.920e-2(4.108e-4)‡
	(10, 20)	5.318e-2(3.297e-3)‡	7.649e-2(5.411e-3)‡	1.630e-2(5.576e-4)‡	1.580e-2(4.263e-4)‡	1.583e-2(1.606e-4)‡
DF9	(10, 5)	1.277e-1(1.982e-2)‡	9.774e-2(2.852e-2)‡	1.314e+0(8.930e-2)‡	4.349e-1(5.679e-2)‡	7.086e-1(1.130e-1)‡
	(10, 10)	6.052e-2(1.090e-2)‡	4.986e-2(1.069e-2)‡	1.061e+0(7.926e-3)‡	1.510e-1(2.892e-2)‡	2.321e-1(2.830e-2)‡
	(10, 20)	3.653e-2(2.426e-3)‡	3.984e-2(1.156e-2)‡	1.029e+0(8.517e-4)‡	1.032e-1(4.086e-3)‡	5.626e-2(6.827e-3)‡
DF10	(10, 5)	2.457e-1(1.635e-2)‡	2.834e-1(1.085e-2)‡	1.519e-1(1.264e-2)‡	1.716e-1(5.747e-3)‡	1.597e-1(5.138e-3)‡
	(10, 10)	2.117e-1(9.947e-3)‡	2.529e-1(1.496e-2)‡	1.338e-1(5.819e-3)‡	1.628e-1(5.449e-3)‡	1.589e-1(4.799e-3)‡
	(10, 20)	1.913e-1(1.606e-2)‡	2.290e-1(7.104e-3)‡	1.225e-1(5.287e-3)‡	1.530e-1(4.033e-3)‡	1.514e-1(4.602e-3)‡
DF11	(10, 5)	1.431e-1(5.292e-3)‡	5.244e-1(8.759e-3)‡	1.279e-1(6.757e-3)‡	1.213e-1(3.538e-3)‡	1.145e-1(2.127e-3)‡
	(10, 10)	1.487e-1(5.021e-3)‡	5.361e-1(1.335e-2)‡	1.039e-1(2.254e-3)‡	1.028e-1(1.096e-3)‡	1.022e-1(1.056e-3)‡
	(10, 20)	1.560e-1(1.066e-2)‡	5.328e-1(1.433e-2)‡	9.589e-2(4.595e-4)‡	9.556e-2(5.035e-4)‡	9.542e-2(4.137e-4)‡
DF12	(10, 5)	3.161e-1(1.514e-2)‡	3.074e-1(1.298e-2)‡	3.214e-1(8.119e-3)‡	3.130e-1(5.340e-3)‡	3.079e-1(4.004e-3)‡
	(10, 10)	2.923e-1(5.577e-3)‡	2.876e-1(1.445e-2)‡	2.942e-1(2.278e-3)‡	2.891e-1(4.177e-3)‡	2.899e-1(2.216e-3)‡
	(10, 20)	2.812e-1(5.022e-3)‡	2.828e-1(8.293e-3)‡	2.818e-1(2.952e-3)‡	2.800e-1(3.507e-3)‡	2.817e-1(2.447e-3)‡
DF13	(10, 5)	2.764e-1(2.126e-2)‡	2.644e-1(3.012e-2)‡	2.138e+0(4.558e-2)‡	2.996e-1(8.211e-3)‡	3.339e-1(9.093e-3)‡
	(10, 10)	2.226e-1(4.011e-3)‡	2.126e-1(5.805e-3)‡	2.054e+0(2.540e-2)‡	2.873e-1(3.487e-3)‡	2.906e-1(2.353e-3)‡
	(10, 20)	1.986e-1(3.440e-3)‡	1.914e-1(2.699e-3)‡	1.988e+0(1.591e-2)‡	3.041e-1(2.407e-3)‡	3.006e-1(1.773e-3)‡
DF14	(10, 5)	4.187e-1(4.618e-2)‡	5.972e-1(1.598e-1)‡	8.814e-1(1.770e-2)‡	7.692e-2(1.472e-3)‡	9.607e-2(2.848e-3)‡
	(10, 10)	3.897e-1(3.944e-2)‡	4.910e-1(1.094e-1)‡	8.360e-1(4.156e-3)‡	6.126e-2(2.122e-4)‡	6.953e-2(6.993e-4)‡
	(10, 20)	3.507e-1(2.130e-2)‡	4.947e-1(8.674e-2)‡	8.214e-1(2.005e-3)‡	5.766e-2(1.382e-4)‡	6.013e-2(2.628e-4)‡