|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ACO | | | | BBO | | | | GA | | | | Coopération | | | |
| inst | BS | NBV | Sec | AVG | BS | NBV | Sec | AVG | BS | NBV | Sec | AVG | BS | NBV | Sec | AVG |
| 50\_1 | 1204,41 | 994 | 0,28 | 1204,41 | 1204,41 | 8799 | 2,37 | 1204,41 | 1204,41 | 994 | 0,28 | 1204,41 | 1204,41 | 643 | 10,61 | 1204,41 |
| 50\_2 | 1340,44 | 946 | 0,21 | 1340,44 | 1340,44 | 3858 | 1,59 | 1340,44 | 1340,44 | 946 | 0,21 | 1340,44 | 1340,44 | 3109 | 7,70 | 1340,44 |
| 50\_3 | 1316,39 | 902 | 0,17 | 1316,39 | 1316,39 | 3265 | 1,43 | 1316,39 | 1316,39 | 902 | 0,17 | 1316,39 | 1316,39 | 4014 | 5,19 | 1316,39 |
| 100\_1 | 1217,47 | 20238 | 7,32 | 1217,47 | 1217,47 | 27326 | 4,56 | 1217,47 | 1217,47 | 20238 | 7,32 | 1217,47 | 1217,47 | 9645 | 9,55 | 1217,47 |
| 100\_2 | 1128,40 | 8631 | 2,65 | 1128,40 | 1128,40 | 18807 | 4,02 | 1128,40 | 1128,40 | 8631 | 2,65 | 1128,40 | 1128,40 | 21078 | 16,12 | 1128,40 |
| 100\_3 | 1252,99 | 88122 | 24,19 | 1255,89 | 1252,99 | 485097 | 58,77 | 1253,89 | 1252,99 | 88122 | 24,19 | 1255,89 | 1252,99 | 127915 | 15,26 | 1254,15 |
| 200\_1 | 1206,79 | 77846 | 52,44 | 1217,46 | 1206,79 | 207530 | 64,53 | 1210,46 | 1206,79 | 77846 | 52,44 | 1217,46 | 1206,79 | 196350 | 107,37 | 1206,79 |
| 200\_2 | 1216,23 | 49921 | 38,66 | 1230,39 | 1214,85 | 1106206 | 355,15 | 1225,39 | 1216,23 | 49921 | 38,66 | 1230,39 | 1214,85 | 856467 | 632,90 | 1216,16 |
| 200\_3 | 1247,62 | 62483 | 41,57 | 1270,13 | 1247,25 | 409505 | 115,54 | 1252,13 | 1247,62 | 62483 | 41,57 | 1270,13 | 1247,25 | 281973 | 271,80 | 1249,13 |
| 300\_1 | 1215,48 | 171236 | 296,36 | 1232,90 | 1215,48 | 559687 | 304,15 | 1222,90 | 1215,48 | 171236 | 296,36 | 1232,90 | 1215,48 | 416987 | 515,97 | 1220,76 |
| 300\_2 | 1172,87 | 127417 | 123,83 | 1185,69 | 1170,85 | 205275 | 116,56 | 1176,04 | 1172,87 | 127417 | 123,83 | 1185,69 | 1170,85 | 350850 | 143,58 | 1174,65 |
| 300\_3 | 1261,64 | 508725 | 464,99 | 1289,37 | 1249,54 | 629728 | 267,17 | 1260,51 | 1261,64 | 508725 | 464,99 | 1289,37 | 1247,51 | 419826 | 382,91 | 1252,74 |
| 400\_1 | 1220,97 | 65436 | 82,71 | 1229,24 | 1211,39 | 560534 | 539,46 | 1216,92 | 1220,97 | 65436 | 82,71 | 1229,24 | 1211,39 | 763589 | 471,99 | 1215,43 |
| 400\_2 | 1209,90 | 557776 | 1174,42 | 1216,48 | 1201,16 | 691873 | 569,46 | 1206,96 | 1209,90 | 557776 | 1174,42 | 1216,48 | 1199,92 | 1763961 | 1195,46 | 1203,27 |
| 400\_3 | 1261,35 | 1399470 | 2104,36 | 1276,25 | 1249,60 | 2880204 | 1980,41 | 1269,25 | 1261,35 | 1399470 | 2104,36 | 1276,25 | 1249,94 | 1794532 | 1361,79 | 1256,18 |
| 500\_1 | 1205,59 | 630376 | 1488,63 | 1224,73 | 1198,27 | 1815043 | 1539,46 | 1216,92 | 1205,59 | 630376 | 1488,63 | 1224,73 | 1198,27 | 1101364 | 947,81 | 1209,46 |
| 500\_2 | 1248,82 | 978224 | 2167,17 | 1253,10 | 1220,47 | 2459096 | 1622,79 | 1240,39 | 1248,82 | 978224 | 2167,17 | 1253,10 | 1220,47 | 1946589 | 1365,48 | 1231,28 |
| 500\_3 | 1251,03 | 628099 | 1010,09 | 1274,11 | 1231,81 | 1508479 | 1028,26 | 1249,88 | 1251,03 | 628099 | 1010,09 | 1274,11 | 1231,81 | 1468317 | 994,41 | 1246,74 |

**Tableau V.1** Résultats d’exécutions des  approches proposées.