|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Instance** | **Results** | **CVRPfC** |
| 1 | E016-03m | Objective Function: 339.5481 |  |
| Dimension16 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Routes | 1 | OB | 1 | 2 | 11 | 5 | DA | OB |  |  |
| 2 | OB | 6 | 7 | 8 | 3 | 9 | 10 | DA | OB |
| 3 | OB | 14 | 13 | 4 | 12 | DA | OB |  |  |

 |
| Capacity90 |
| Vehicles3 |
| 2 | E016-05m | Objective Function: 470.4268 |  |
| Dimension16 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Routes | 1 | OB | 1 | 3 | 2 | DA | OB |  |
| 2 | OB | 6 | 11 | 9 | 10 | DA | OB |
| 3 | OB | 7 | 8 | DA | OB |  |  |
| 4 | OB | 12 | 5 | DA | OB |  |  |
| 5 | OB | 14 | 13 | 4 | DA | OB |  |

 |
| Capacity55 |
| Vehicles5 |
| 3 | E021-04m | Objective Function: 483.5574 |  |
| Dimension21 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Routes | 1 | OB | 2 | 1 | 6 | 11 | DA | OB |  |  |
| 2 | OB | 4 | 15 | 3 | 9 | DA | OB |  |  |
| 3 | OB | 13 | 14 | 8 | 7 | 5 | DA | OB |  |
| 4 | OB | 17 | 16 | 18 | 12 | 10 | 19 | DA | OB |

 |
| Capacity85 |
| Vehicles4 |
| 4 | E021-06m | Objective Function: 640.441 |  |
| Dimension21 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Routes | 1 | OB | 1 | 6 | DA | OB |   |   |   |
| 2 | OB | 4 | 3 | 9 | DA | OB |   |   |
| 3 | OB | 8 | 7 | 5 | DA | OB |   |   |
| 4 | OB | 14 | 13 | 16 | 18 | 12 | DA | OB |
| 5 | OB | 15 | 2 | DA | OB |   |   |   |
| 6 | OB | 17 | 10 | 19 | 11 | DA | OB |   |

 |
| Capacity58 |
| Vehicles4 |
| 5 | P-n16-k8 | Objective Function: 643.5748 |  |
| Dimension16 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Routes | 1 | OB | 1 | DA | OB |   |   |
| 2 | OB | 2 | DA | OB |   |   |
| 3 | OB | 3 | 12 | DA | OB |   |
| 4 | OB | 4 | 11 | DA | OB |   |
| 5 | OB | 5 | 7 | 10 | DA | OB |
| 6 | OB | 6 | DA | OB |   |   |
| 7 | OB | 8 | DA | OB |   |   |
| 8 | OB | 14 | 9 | 13 | DA | OB |

 |
| Capacity35 |
| Vehicles8 |
| 6 | P-n19-k2 | Objective Function: 213.4269 |  |
| Dimension19 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Routes | 1 | OB | 1 | 10 | 4 | 11 | 14 | 12 | 3 | 17 | 16 | 8 | DA | OB |
| 2 | OB | 6 | 2 | 7 | 9 | 15 | 13 | 5 | DA | OB |  |  |  |

 |
| Capacity160 |
| Vehicles2 |
| 7 | P-n20-k2 | Objective Function: 224.2078 |  |
| Dimension20 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Routes | 1 | OB | 1 | 10 | 4 | 11 | 15 | 12 | 3 | 18 | 17 | 8 | 13 | DA | OB |
| 2 | OB | 6 | 2 | 7 | 9 | 16 | 14 | 5 | DA | OB |   |   |   |   |

 |
| Capacity160 |
| Vehicles2 |
| 8 | P-n21-k2 | Objective Function: 224.7469 |  |
| Dimension21 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Routes | 1 | OB | 1 | 10 | 4 | 11 | 15 | 12 | 3 | 19 | 18 | 8 | 7 | DA | OB |
| 2 | OB | 16 | 6 | 2 | 13 | 9 | 17 | 14 | 5 | DA | OB |   |   |   |

 |
| Capacity160 |
| Vehicles2 |
| 9 | P-n22-k2 | Objective Function: 242.4456 |  |
| Dimension22 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Routes | 1 |  OB | 1 | 10 | 4 | 11 | 15 | 12 | 3 | 19 | 18 | 8 | 13 | 9 |  DA | OB |
| 2 |  OB | 16 | 6 | 2 | 7 | 20 | 5 | 14 | 17 | DA | OB |   |   |   |   |

 |
| Capacity160 |
| Vehicles2 |
| 10 | P-n23-k8 | Objective Function: 633.3429 |  |
| Dimension23 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Routes | 1 | OB | 1 | 4 | 11 | DA | OB |   |
| 2 | OB | 2 | 9 | DA  | OB |   |   |
| 3 | OB | 3 | 19 | 18 | DA | OB |   |
| 4 | OB | 5 | 17 | DA | OB |   |   |
| 5 | OB | 6 | 7 | DA | OB |   |   |
| 6 | OB | 11 | 15 | 12 | 13 | DA | OB |
| 7 | OB | 16 | 8 | DA | OB |   |   |
| 8 | OB | 21 | 20 | 14 | DA | OB |   |

 |
| Capacity40 |
| Vehicles8 |

**FIGURE 4:** Solutions of the Capacitated Vehicle Routing Problem for Carriers model on adapted Vehicle Routing Problem LIBrary test problems.