**Data Analysis** - Sample Date for a **180 Node Network - Single Source to Multiple Destinations**

Hopfield Neural Networks Convergent Algorithms

**Result 1**

|  |  |
| --- | --- |
| Path : 1 -> 4 -> 8 -> 16 -> 32 -> 38 -> 43 -> 48 -> 52 | Cost |
|  |  |
| Ali & Kamoun | No Convergence |
| Park & Keum | 15469 |
| Park & Choi | 55608 |
| Ahn & Ramakrishna | 16467 |

**Result 2**

|  |  |
| --- | --- |
| Path : 1 -> 6 -> 9 -> 15 -> 18 -> 20 -> 35 | Cost |
|  |  |
| Ali & Kamoun | No Convergence |
| Park & Keum | 8251 |
| Park & Choi | No Convergence |
| Ahn & Ramakrishna | No Convergence |

**Result 3**

|  |  |
| --- | --- |
| Path : 1 -> 10 -> 20 -> 35 -> 40 -> 116 | Cost |
|  |  |
| Ali & Kamoun | No Convergence |
| Park & Keum | 8677 |
| Park & Choi | No Convergence |
| Ahn & Ramakrishna | No Convergence |

**Result 4**

|  |  |
| --- | --- |
| Path : 31 -> 28 -> 36 -> 39 -> 110 | Cost |
|  |  |
| Ali & Kamoun | No Convergence |
| Park & Keum | 5008 |
| Park & Choi | No Convergence |
| Ahn & Ramakrishna | 5008 |

**Result 5**

|  |  |
| --- | --- |
| Path : 1 -> 10 -> 20 -> 35 -> 40 -> 116 | Cost |
|  |  |
| Ali & Kamoun | No Convergence |
| Park & Keum | 8677 |
| Park & Choi | No Convergence |
| Ahn & Ramakrishna | 15554 |

**Result 6**

|  |  |
| --- | --- |
| Path : 1 -> 10 -> 20 -> 35 -> 40 -> 116 | Cost |
|  |  |
| Ali & Kamoun | No Convergence |
| Park & Keum | 4821 |
| Park & Choi | No Convergence |
| Ahn & Ramakrishna | No Convergence |

**Result 7**

|  |  |
| --- | --- |
| Path : 1 -> 10 -> 15 -> 25 -> 17 | Cost |
|  |  |
| Ali & Kamoun | No Convergence |
| Park & Keum | 5130 |
| Park & Choi | No Convergence |
| Ahn & Ramakrishna | No Convergence |

|  |  |  |
| --- | --- | --- |
| Convergence % | Convergent | Non Convergent |
| Ali & Kamoun | 0.2% | 99.8% |
| Park & Keum | 99.8% | 0.2% |
| Park & Choi | 14.0% | 86.0% |
| Ahn & Ramakrishna | 41.0% | 59.0% |