**OSPF Cost Written Assignment - 60 Points**

(35 Points for Written, 25 Points – Packet Tracer)

**Cost Calculation**

**Part I. Possible routes** - For each of the following, write down all of the possible routes that could be taken from that router to the end destination. For example, a possible route from Router B to France is BCGF. You must list all of them.

Router B to Francine -

Router D to Dante -

Router F to Fred -

Router A to Meagan -

**Part II. Link costs** – We need to know what OSPF’s cost will be for each link. Fill in this table with the cost for each link speed in the topology. The formula is 100,000,000 (108)/ bandwidth. You can assume all LANs are 100 Mbps or faster.

|  |  |
| --- | --- |
| **Speed** | **OSPF Cost** |
| 72K |  |
| 128K |  |
| 250K |  |
| 500K |  |
| 800K |  |
| 1 Mbps |  |
| 1.3 Mbps |  |
| 2 Mbps |  |
| 100 Mbps (LANs) | 1 |

**Part III. Compute costs of possible paths** - Time to crunch some numbers. You need to calculate the combine cost to get to the destination network for each possible path and find the lowest.

Router B to Francine

|  |  |  |
| --- | --- | --- |
| Path | Total Cost | Preferred Path? (yes or no) |
| BDEF | 575 | No |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Router D to Dante

|  |  |  |
| --- | --- | --- |
| Path | Total Cost | Preferred Path? (yes or no) |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Router F to Fred

|  |  |  |
| --- | --- | --- |
| Path | Total Cost | Preferred Path? (yes or no) |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Router A to Meagan

|  |  |  |
| --- | --- | --- |
| Path | Total Cost | Preferred Path? (yes or no) |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Section III** – Now configure the topology with OSPF as your routing protocol. Remember the following:

1. One network statement for each subnet that the router touches. (per interface, basically)
2. BANDWIDTH statements on each serial interface – (clock rate AND non-clock rate)

Once completed, compare your manual calculations with the routing tables. (Your number should be within 1-2)

Does the routing entry in Router B for 199.0.0.80 (Francine’s LAN) match your preferred route cost?

Does the routing entry in Router D for 199.0.0.0 (Dante’s LAN) match your preferred route cost?

Does the routing entry in Router F for 199.0.0.128 (Fred’s LAN) match your preferred route cost?

Does the routing entry in Router A for 199.0.0.96 (Meagan’s LAN) match your preferred route cost?