Dhaka Network

Before getting caught by the police, former State Minister for Posts, Telecommunications, and Information Technology **Zunaid Ahmed Palak** had destroyed the network among six major areas of Dhaka City. The Dhaka City Authority wants six major areas connected through a secure enterprise network so government, commerce, and education can communicate efficiently. You're the Chief Network Architect.

Locations & populations

- **Secretariat** - 95 (central government hub)
- **Gulshan** - 430 (business/embassy district)
- **Mirpur**-180 (residential + sports complex)
- **Motijheel** - 680 (financial district/port-like traffic)
- **Kamrangirchar** - 1250 (industrial area)
- **Dhanmondi (Suncrest Academy)**- 220 (educational district)

Topology

- Every Area is a Local Area Network
- Select the student ID of the last member of your group. Now take the last 4 digits of that ID and divide them into two parts containing two digits each. These two parts are the first two octets of the network address of the location. The third and fourth octets are 0, and the prefix mask is 16. Suppose the ID is 20201002. Then the last four digits are 1002. Now dividing it into two parts gives 10 and 02. So, the Network address is 10.2.0.0/16.
- You must:
    - Perform VLSM subnetting
    - Assign one unique subnetwork address for each Area
- **Secretariat** hosts: **DNS**, **Web**, **Email**, and the **central DHCP server**.
- The web page must show: "Welcome to the Dhaka City Network" and be reachable as **www.dhaka.gov** from all areas.
- **Email** service is allowed among Secretariat, Gulshan and Kamrangirchar only.
- **DHCP**: Mirpur and Dhanmondi must receive IPs via DHCP (from Secretariat); others use static addressing.

Routing

- **Static routing**
    - Secretariat ↔ Gulshan: recursive static route
    - Gulshan ↔ Kamrangirchar: directly attached static route
- **Dynamic routing:** RIP v2 for all other paths
- **Floating/static backup:** Storm-like backup provide a floating static route from Motijheel → Secretariat via Dhanmondi (used only if main path fails)
- **No default route** anywhere
- After all configurations:
    - You must successfully **ping between any two Areas.**.

You are allowed to make any valid and necessary assumptions while designing the network infrastructure.

Deliverables

- The network mentioned above should be implemented in Cisco Packet Tracer, with the necessary devices and full configuration.
- After completion, you should be able to test the conditions imposed, and all the devices should be able to ping one another.
- You will have to submit the following:
    - Work Distribution among the group members [Who did which part]
    - The pkt/pka file
    - Picture of the Network topology diagram with proper labels [You have to show the network addresses using notes for each network]
- A PDF containing
    - VLSM tree
    - IP address table
    - The configuration commands of all the routers you have implemented.