1. Describe the advantages of RIPv1 over Static Route Configuration.

RIP has a simple initial configuration, so you do not need to update the configuration when the topology changes.

2. Research the 'Route Loop Problem' and 'Route Poisoning' and provide a short technical description of each of them.

Route Loop Problem is when a data packet is continually routed through the same routers in an endless cycle.

Route Poisoning is a method that prevents a network from sending data packets to an invalid path destination.

3. Are there some prevention or mitigation for the problems mentioned in Question 2? If so, how are they implemented?

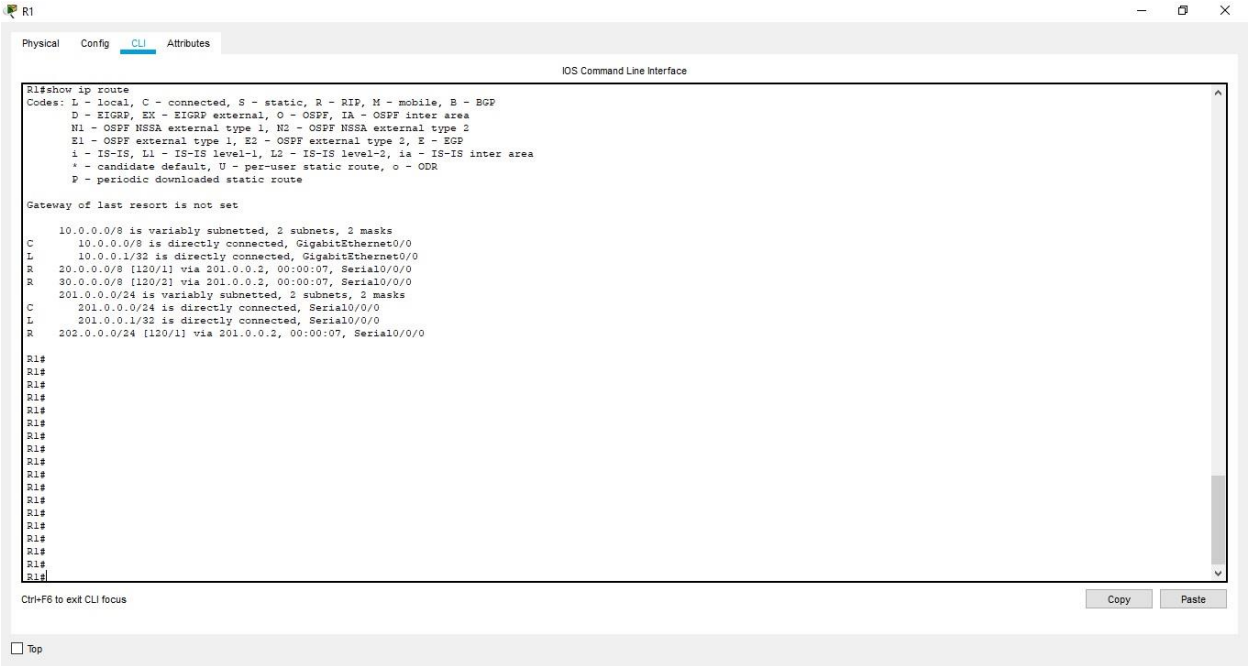
In addition to route poisoning, there are three other checks ensured to prevent the route loop problem - maximum hop count, split horizon, and hold downs.

Maximum hop counts are placed so that any route with more than the maximum hop count is deemed unreachable and will not be used.

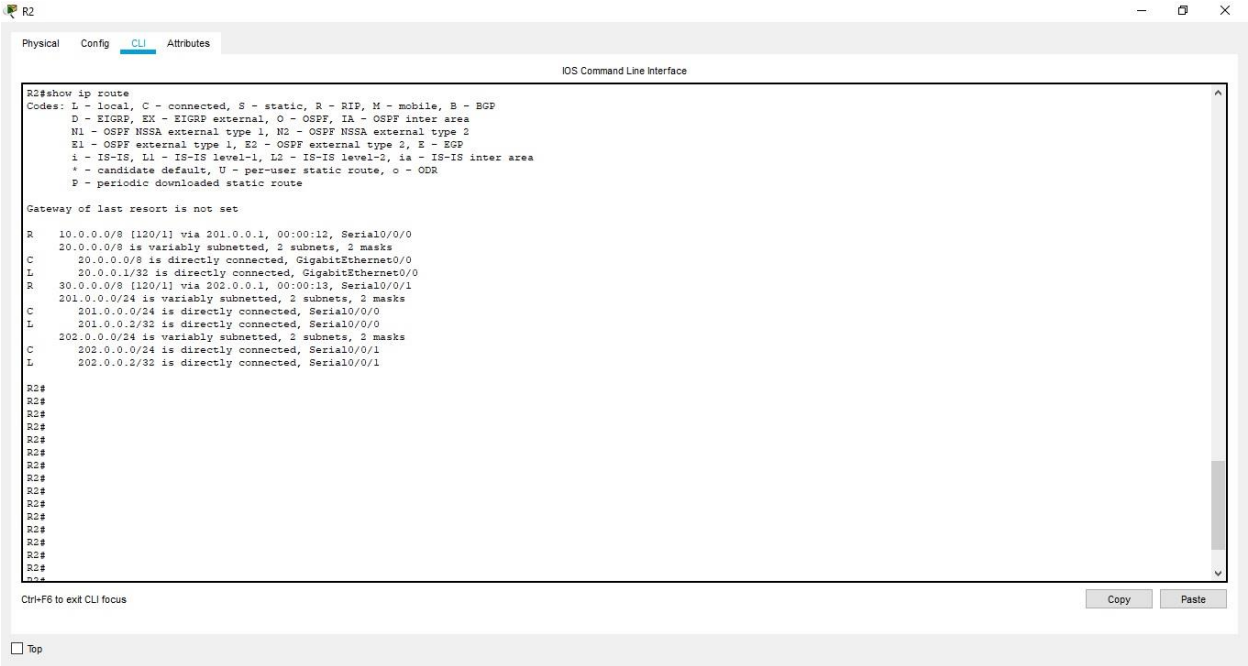
Split horizon rules that routing information learned from one interface cannot be advertised back to that interface.

Hold downs are implemented timers to allow lost routes to recover or to switch to the next best route to the same destination.

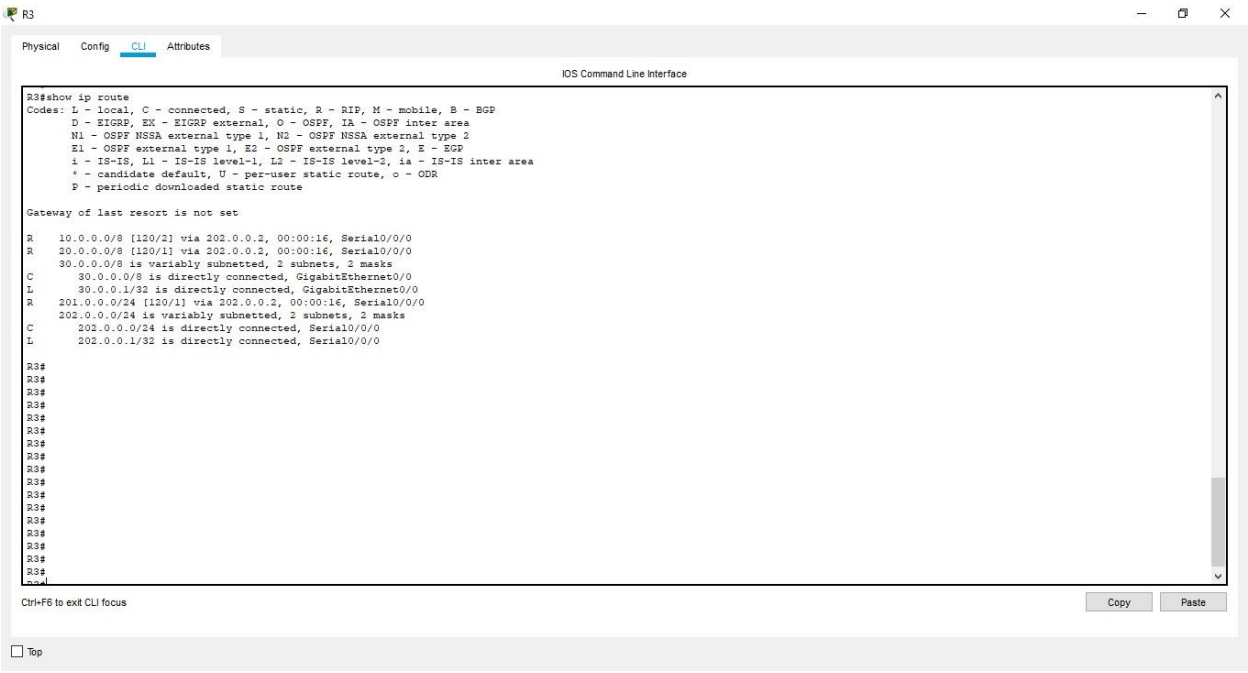
4. Provide a screenshot of your R1 IP table correctly configured.



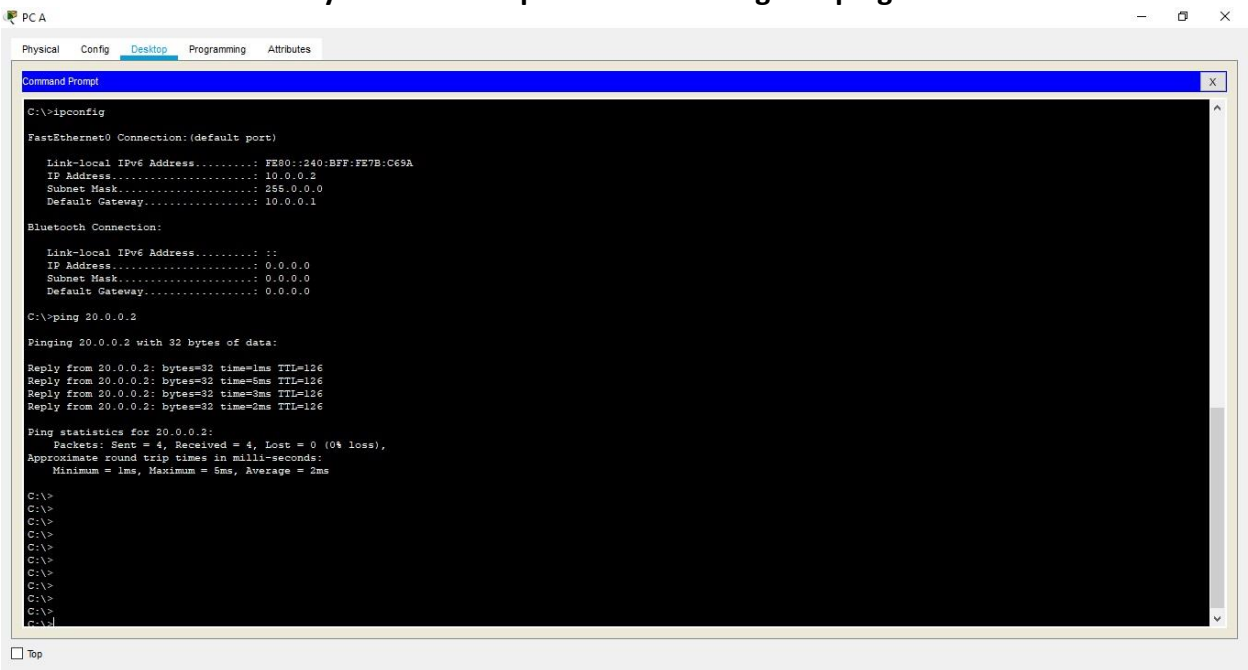
5. Provide a screenshot of your R2 IP table correctly configured.

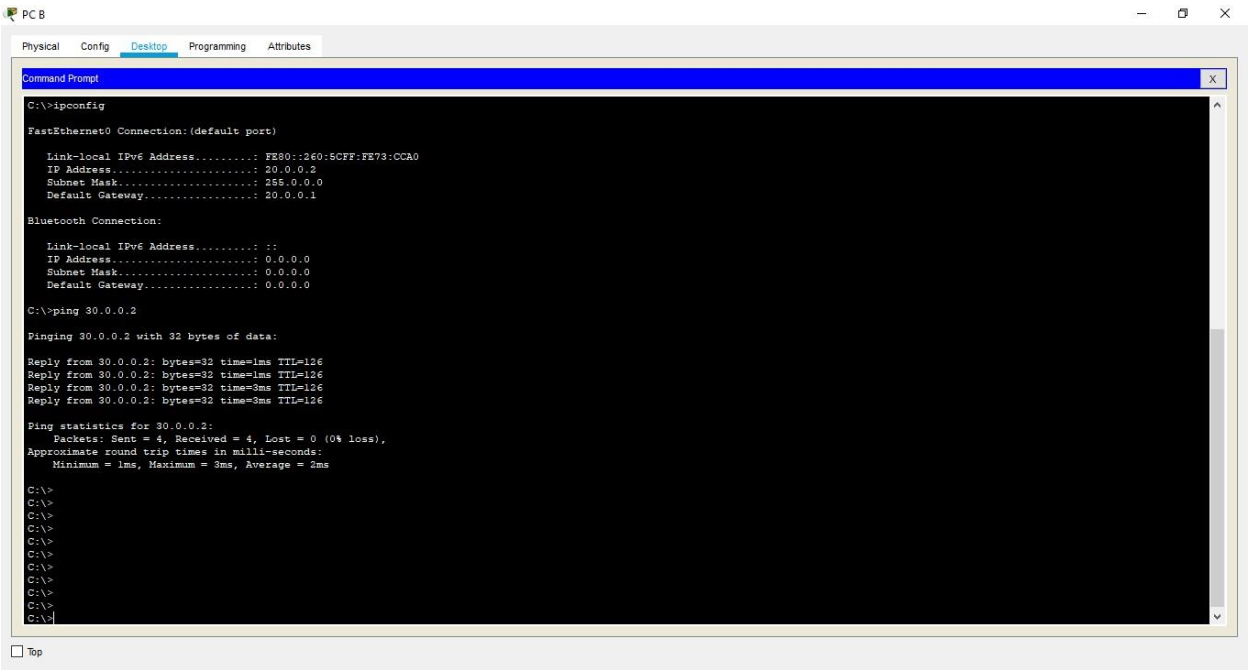


6. Provide a screenshot of your R3 IP table correctly configured,



7. Provide a screenshot of PC0 sending successfully packets to PC2, and from PC2 to PC3. Each screenshot should clearly show the outputs of the ifconfig and ping commands.





8. Execute the command show ip protocols in R2 and describe relevant information to the RIP v1 configuration protocol.

The interfaces GigabitEthernet0/0, Serial0/0/0, and Serial0/0/1 are sending and receiving data using RIP version 1. Routing for Networks are established for 20.0.0.0, 201.0.0.0, and 202.0.0.0. Passive Interface Gateways are established for 201.0.0.1 and 202.0.0.1.