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Assignment - B3

* Title: To study about dynamic routing protocols
* Problem Statement: Configure RIP / OSPF / BGP using packet tracer
* Objective:
  To learn about dynamic routing protocols.
* Theory:

- Dynamic Routing:
  Dynamic Routing is a networking technique that provides optimal data routing. Unlike static routing, dynamic routing enables routers to select paths according to real-time logical network layout changes.
  Dynamic routing protocols allow routers to share information about the n/w to allow them to select best path to reach a destination.
  Dynamic routing uses multiple algorithms & protocols. Its most popular are routing information protocol and open shortest path first.

- RIP Protocol:
  Routing Information protocol is an intra-domain routing protocol used with an autonomous system. Here, intra-do means routing the packets in a defined domain.
  (1) RIP is based on the distance vector-based strategy, so we can consider graph where nodes are routers & links are networks.

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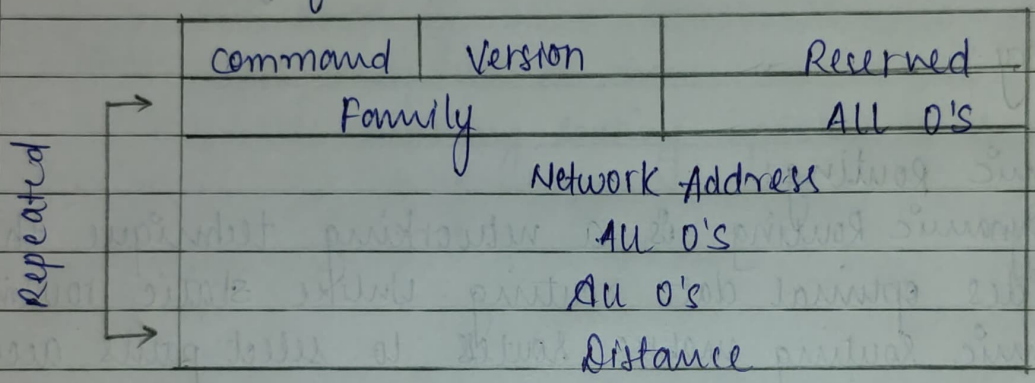
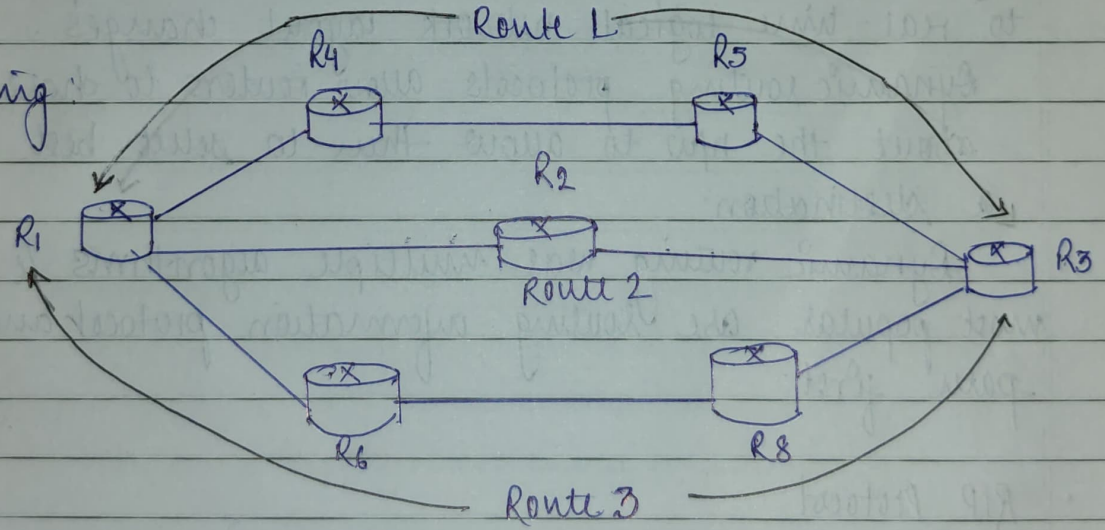
② In a routing table, first column is destination.
③ The cost metric is number of hops to reach the destination.
④ In RIP, infinity is 16 which means RIP is useful for small n/w's, max number of hops is 15.
⑤ The next column contains address of router to which packet is to be sent to reach destination.

- RIP message format:



- Working:



Suppose R1 wants to send data to R8, if n/w is configured with RIP, it will choose route which has least no of hops, i.e it will choose route 2.

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- Advantages of RIP:

i) It is easy to configure
ii) It has less complexity
iii) The CPU utilization is less.

- Disadvantages of RIP

i) In RIP, route is choosen based on hop count metric, so if another route of better bandwidth is available, then that route may not be chosen
ii) It broadcasts running routing updates to entire network that creates a lot of traffic
iii) It faces slow convergence.

* Conclusion:

We successfully configured RIP in cisco packet tracer.

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