**Part – B**

**B1)**

First, we configured all the nodes by copying the following files (daemons, debian.conf, ripd.conf, and zebra.conf) to each node’s config inside ~/Part-B/configs.

This would enable the zebra and ripd capabilities on all nodes.

cp /etc/quagga/zebra.conf /Part-B/configs/H1

cp /etc/quagga/ripd.conf /Part-B/configs/H1

cp /etc/quagga/daemons /Part-B/configs/H1

cp /etc/quagga/debian.conf /Part-B/configs/H1

Execute similar commands for other nodes.

Next, set zebra=yes and ripd=yes in each node’s daemon file

Restart the quagga service.

command: /etc/init.d/quagga restart

To configure ripd daemons on each node:

1. goto util folder in miniNext

command: cd /miniNExT/util

2. launch a node

command: ./mx H1

3. get the port number of running ripd

command: netstat -na

4. connect to localhost/ripd process.

command: telnet localhost 2602

password: zebra

5. Enable

command: en

6. configure the ripd terminal

command: configure terminal

7. enable RIP as a routing protocol

command: router rip

8. configure all the interfaces of the node

command: network H1-eth0

9. save the config

command: write

10. exit from the terminal

Command: exit

Follow similar setup for each interface on all nodes.

Enable IP forwarding on all nodes using following commands in start.py file:

H1 echo 1 > /proc/sys/net/ipv4/ip\_forward

H2 echo 1 > /proc/sys/net/ipv4/ip\_forward

R1 echo 1 > /proc/sys/net/ipv4/ip\_forward

R2 echo 1 > /proc/sys/net/ipv4/ip\_forward

R3 echo 1 > /proc/sys/net/ipv4/ip\_forward

R4 echo 1 > /proc/sys/net/ipv4/ip\_forward

Command to execute is python start.py.

**B2)**

1. the routing table screenshots of all nodes (both the kernel and the Quagga routing table) are present in Part-B folder.
2. the traceroute screenshots that gives the path between nodes H1 & H2 are present in Part-B folder.
3. time taken to ping is 0.067 ms.
4. convergence time is 2.01698899269 seconds.

**B3)**

1. Command to get the R1-R2 link down: net.configLinkStatus('R1','R2','down')
2. Time taken to establish the connection: 22.1809689999 seconds.
3. the traceroute screenshots that gives the new path between nodes H1 & H2 are present in Part-B folder.