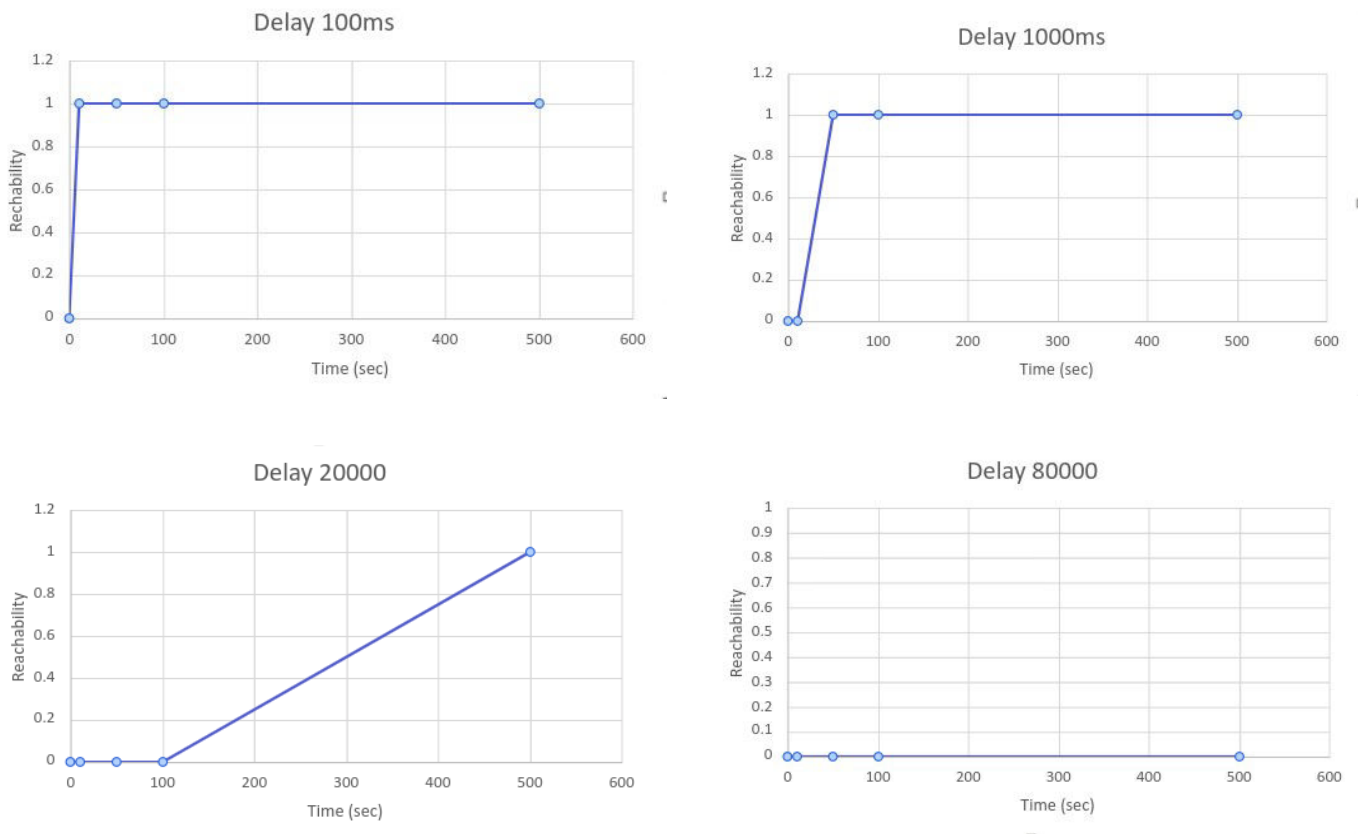# Assignment 4 Part B
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## 2020CS10385

**Question (i):**

**(a)**



**(b)** As the delay is increased the time taken by routing table to converge increases. This is beacuse the with increased delay the time taken for routers to propogate the information increases thus the routers have complete information at a later time.

**Question (ii):**

**(a)**

Router 1:

```
Router 1 (R1): Time: +121.0s, Local time: +121.0s, IPv4 RIP table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
10.0.0.0         0.0.0.0          255.255.255.0    U     1     -      -   1

Router 1 (R1):, Time: +180.0s, Local time: +180.0s, IPv4 RIP table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
10.0.0.0         0.0.0.0          255.255.255.0    U     1     -      -   1
```

Router 2:

```
Router 2 (R2): Time: +121.0s, Local time: +121.0s, IPv4 RIP table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
10.0.4.0         10.0.3.2         255.255.255.0    UGS   2     -      -   2
10.0.2.0         10.0.3.2         255.255.255.0    UGS   2     -      -   2
10.0.0.0         10.0.3.2         255.255.255.0    UGS   3     -      -   2
10.0.3.0         0.0.0.0          255.255.255.0    U     1     -      -   2

Router 2 (R2): Time: +180.0s, Local time: +180.0s, IPv4 RIP table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
10.0.4.0         10.0.3.2         255.255.255.0    UGS   2     -      -   2
10.0.3.0         0.0.0.0          255.255.255.0    U     1     -      -   2
```

Router 3:

```
Router 3 (R3): Time: +121.0s, Local time: +121.0s, IPv4 RIP table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
10.0.1.0         10.0.3.1         255.255.255.0    UGS   16    -      -   2
10.0.3.0         0.0.0.0          255.255.255.0    U     1     -      -   2
10.0.4.0         0.0.0.0          255.255.255.0    U     1     -      -   3

Router 3 (R3): Time: +180.0s, Local time: +180.0s, IPv4 RIP table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
10.0.1.0         10.0.3.1         255.255.255.0    UGS   16    -      -   2
10.0.3.0         0.0.0.0          255.255.255.0    U     1     -      -   2
10.0.4.0         0.0.0.0          255.255.255.0    U     1     -      -   3
```
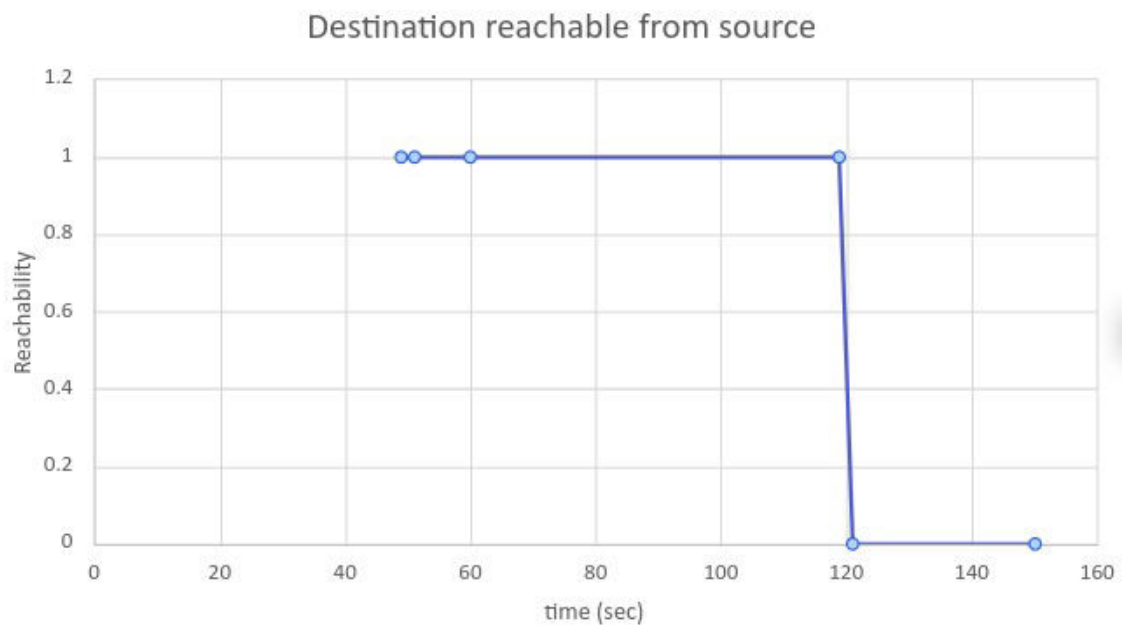
**(b)**



Destination reachable from source

*(Graph: x-axis labeled "time (sec)" ranging from 0 to 160; y-axis labeled "Reachability" ranging from 0 to 1.2. The reachability value is 1 from approximately t=48 through t=120, then drops to 0 from t=121 onward.)*

**(c)** The destination is reachable from source at t=51sec and t=119sec, but destination becomes unreachable at t=121sec because from router1 (R1) only source is connected and there is no way to reach the destination. Before 120sec from router R1 router R3 is also connected which is in turn connected to destination, thus a path exists from source to destination.

**Question (iii):**

**(a)** Router 1:

```
Router 1 (R1): Time: +70.0s, Local time: +70.0s, IPv4 RIP table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
10.0.0.0        0.0.0.0         255.255.255.0   U     1      -      -   1

Router 1 (R1): Time: +180.0s, Local time: +180.0s, IPv4 RIP table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
10.0.4.0        10.0.2.2        255.255.255.0   UGS   2      -      -   3
10.0.3.0        10.0.1.2        255.255.255.0   UGS   2      -      -   2
10.0.0.0        0.0.0.0         255.255.255.0   U     1      -      -   1
10.0.1.0        0.0.0.0         255.255.255.0   U     1      -      -   2
10.0.2.0        0.0.0.0         255.255.255.0   U     1      -      -   3
```

Router 2:

```
Router 2 (R2): Time: +70.0s, Local time: +70.0s, IPv4 RIP table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
10.0.4.0        10.0.3.2        255.255.255.0   UGS   2      -      -   2
10.0.3.0        0.0.0.0         255.255.255.0   U     1      -      -   2

Router 2 (R2): Time: +180.0s, Local time: +180.0s, IPv4 RIP table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
10.0.4.0        10.0.3.2        255.255.255.0   UGS   2      -      -   2
10.0.2.0        10.0.1.1        255.255.255.0   UGS   2      -      -   1
10.0.0.0        10.0.1.1        255.255.255.0   UGS   2      -      -   1
10.0.1.0        10.0.3.2        255.255.255.0   UGS   3      -      -   2
10.0.3.0        0.0.0.0         255.255.255.0   U     1      -      -   2
10.0.1.0        0.0.0.0         255.255.255.0   U     1      -      -   1
```

Router 3:

```
Router 3 (R3): Time: +70.0s, Local time: +70.0s, IPv4 RIP table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
10.0.3.0        0.0.0.0         255.255.255.0   U     1      -      -   2
10.0.4.0        0.0.0.0         255.255.255.0   U     1      -      -   3

Router 3 (R3): Time: +180.0s, Local time: +180.0s, IPv4 RIP table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
10.0.1.0        10.0.2.1        255.255.255.0   UGS   2      -      -   1
10.0.0.0        10.0.2.1        255.255.255.0   UGS   2      -      -   1
10.0.2.0        10.0.3.1        255.255.255.0   UGS   3      -      -   2
10.0.3.0        0.0.0.0         255.255.255.0   U     1      -      -   2
10.0.4.0        0.0.0.0         255.255.255.0   U     1      -      -   3
10.0.2.0        0.0.0.0         255.255.255.0   U     1      -      -   1
```

**(b)**



Destination reachable from source