COMP9332 Network Routing and Switching
Solution of Self-assessed Tutorial for RIP

Q1. A router running RIP has a routing table with 25 entries. Answer the following questions:

(a) How many periodic timers are running?
(b) How many expiration timers are running?
(c) How many garbage collection timers are running if 5 routes are invalid?

A1.

(a) 1
(b) 25
(c) 5

Q2. A router has the following RIP routing table (Q14 from Forouzan, page 433):

Net1	4	B
Net2	2	C
Net3	1	F
Net4	5	G

What would the contents of the table if the router receives the following RIP message from router C?

Net1	2
Net2	1
Net3	3
Net4	7

A2.

Net1	3	C
Net2	2	C
Net3	1	F
Net4	5	G

Q3. In the figure of Slide 46 (RIP lecture notes), what is the path taken to reach to a host connected to network 66 from router A?

A3. A-E-D

Q4. What is the routing overhead in Slide 46, i.e., how much traffic (in terms of Kbps) is generated by RIP on the (sub) networks?

A4. From the RIP message format (see Slide 47) we have:

- Each table entry occupies 5x4=20 bytes.
- We have 7 entries, giving a RIP message of size 140+4=144 bytes
- After encapsulation in UDP and IP, the size of an IP packet carrying the RIP table = 172 bytes
- Ignoring the link and physical layer encapsulation overhead, each router creates a total of 344 IP layer overhead per 30 seconds.
- With two routers connected to a subnet, this becomes a total of 344 bytes per 30 seconds = 91.7 bps or 0.0917 Kbps (note that bps means bits per second and 1 byte = 8 bits)

Q5. If a router never connects more than 2 (sub-) networks, what is the maximum number of (sub) networks a RIP-based autonomous system can have?

A5. 16