Everett Sheu

704796167

CS 118 – HW #4

1.

a. The shortest path between R1 and P is as follows: R1->R2->R4->R3->P. This gives a path with cost 4. The smallest pack size guaranteed to get through without fragmentation is 512.

b.

$$Distance(P,R) = \min\begin{pmatrix} Distance(R,N_0) + Distance(P,N_0), \\ Distance(R,N_1) + Distance(P,N_1), \\ \dots, \\ Distance(R,N_k) + Distance(P,N_k) \end{pmatrix}$$

$$MMPS(P,R) = \min\begin{pmatrix} MMPS(R,N_0), MMPS(P,N_0), \\ MMPS(R,N_1), MMPS(P,N_1), \\ \dots, \\ MMPS(R,N_k), MMPS(P,N_k) \end{pmatrix},$$

$$MMPS = MinMaxPacketSize$$

2.

Router	T = 0	T = 1	T = 2	T = 3	T = 4	T = 5	T = 6	T = 7	T = 8
R1	1	1	21	21	21	21	511	511	511
R2	20	20	20	21	21	510	510	511	511
R3	510	510	510	510	510	510	510	510	511
R4	10	10	10	21	21	510	510	511	511

At time 0: R1 sends LSP sequence 1 to R2 and R4

At time 1: R2 sends LSP sequence 20 to R1 and R4 sends LSP sequence 10 to R1

At time 2: R1 updates its LSP sequence to 21 and sends that to R2 and R4

At time 3: R2 and R4 update their LSP sequences to 21 and they both send that to R3

At time 4: R3 sends LSP sequence 510 to R2 and R4

At time 5: R2 and R4 both send 510 to R1

At time 6: R1 updates to 511 and sends to R2 and R4

At time 7: R2 and R4 send to R3

At time 8: R3 updates and the system stabilizes

It takes 8 time units for the system to stabilize.