Mokhtari (9831143) – Computer Networks 2 – HW 02

P1 from Chapter **4** of Kurose & Ross's Computer Networking, A Top-Down Approach, **8**th edition:

a) Data destined for host H3 is routed through interface 3 by Router A.

Destination Address	*Link interface*
H3	#3

b) No, because forwarding rules in datagram networks are only based on the destination address (not the source address).

P4 from Chapter **4** of Kurose & Ross's Computer Networking, A Top-Down Approach, **8**th edition:

Three time slots are required as a minimal level, and their scheduling is as below:

1. Sending X to the top input queue and Y to the middle input queue in slot 1.
2. Sending X to the middle input queue and Y to the bottom input queue in slot 2.
3. Sending Z to the bottom of the input queue in slot 3.

Three slots remain the largest number of slots. Actually, if we assume that a non-empty input queue is never idle, we can see that the first time slot always consists of sending X in the top input queue and Y in either the middle or bottom input queue. The second time slot can always send two more datagrams, and the third time slot can always send the last datagram. The worst-case scenario would actually require four time slots if X is the first datagram in the bottom input queue.

P21 from Chapter **4** of Kurose & Ross's Computer Networking, A Top-Down Approach, **8**th edition:

The following is the S2 flow table:

Match	*Action*
Ingress Port: 1; IP Src: 10.3.*.*; IP Dst: 10.1.*.*	Forward(2)
Ingress Port: 2; IP Src: 10.1.*.*; IP Dst: 10.3.*.*	Forward(1)
Ingress Port: 1; IP Dst: 10.2.0.3	Forward(3)
Ingress Port: 2; IP Dst: 10.2.0.3	Forward(3)
Ingress Port: 4; IP Src=10.2.0.4; IP Dst: 10.2.0.3	Forward(3)
Ingress Port: 1; IP Dst: 10.2.0.4	Forward(4)
Ingress Port: 2; IP Dst: 10.2.0.4	Forward(4)
Ingress Port: 3; IP Src=10.2.0.3; IP Dst: 10.2.0.4	Forward(4)

P24 from Chapter **4** of Kurose & Ross's Computer Networking, A Top-Down Approach, **8**th edition:

- The S2 flow table for "Only traffic arriving from hosts h1 and h6 should be delivered to hosts h3 or h4 (i.e., that arriving traffic from hosts h2 and h5 is blocked)":

Match	*Action*
IP Src = 10.1.0.1; IP Dst = 10.2.0.3	Forward (3)
IP Src = 10.1.0.1; IP Dst = 10.2.0.4	Forward (4)
IP Src = 10.3.0.6; IP Dst = 10.2.0.3	Forward (3)
IP Src = 10.3.0.6; IP Dst = 10.2.0.4	Forward (4)

Mokhtari (9831143) – Computer Networks 2 - HW 02

- The S2 flow table for “Only TCP traffic is allowed to be delivered to hosts h3 or h4 (i.e., that UDP traffic is blocked)”:

Match	*Action*
IP Src =.*.*.*.*; IP Dst = 10.2.0.3; port = TCP	Forward (3)
IP Src =.*.*.*.*; IP Dst = 10.2.0.4; port = TCP	Forward (4)

- The S2 flow table for “Only traffic destined to h3 is to be delivered (i.e., all traffic to h4 is blocked)”:

Match	*Action*
IP Src =.*.*.*.*; IP Dst = 10.2.0.3	Forward (3)

- The S2 flow table for “Only UDP traffic from h1 and destined to h3 is to be delivered. All other traffic is blocked.”:

Match	*Action*
IP Src = 10.1.0.1; IP Dst = 10.2.0.3; port = UDP	Forward (3)