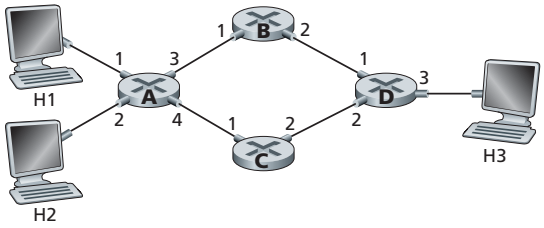
Name: _____

Homework 5

- **Print** your name.

Problem	Points	Score
1	2	
2	2	
3	2	
4	2	
Total:	8	



1. Consider the network above.

   (a) (1 point) Show the forwarding table in router A, such that all traffic destined to host H3 is forwarded through interface 3.

   (b) (1 point) Can you write down a forwarding table in router A, such that all traffic from H1 destined to host H3 is forwarded through interface 3, while all traffic from H2 destined to host H3 is forwarded through interface 4? (Hint: this is a trick question.)

2. (2 points) Consider a datagram network using 8-bit host addresses. Suppose a router uses longest prefix matching and has the following forwarding table:

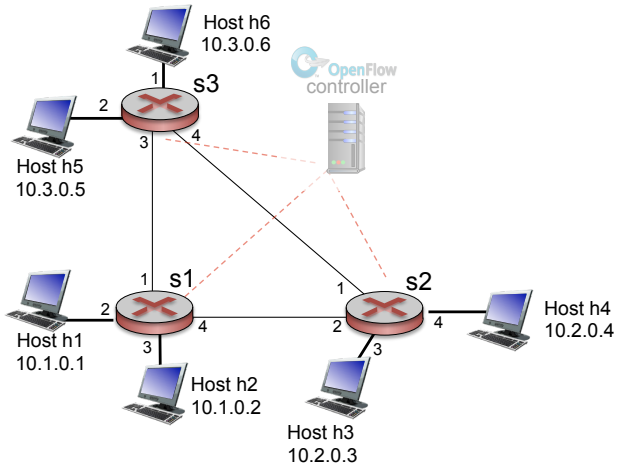
Prefix Match	Interface
00	0
010	1
011	2
10	2
11	3

For interface 2, give the associated range of destination host addresses and the number of addresses in the range.

3. (2 points) Consider a router that interconnects three subnets: Subnet 1, Subnet 2, and Subnet 3. Suppose all of the interfaces in each of these three subnets are required to have the prefix 223.1.17/24. Also suppose that Subnet 1 is required to support at least 60 interfaces, Subnet 2 is to support at least 90 interfaces, and Subnet 3 is to support at least 12 interfaces. Provide three net- work addresses (of the form a.b.c.d/x) that satisfy these constraints.

4. (2 points) Consider the SDN OpenFlow network shown in the following figure. Suppose that the desired forwarding behavior for datagrams arriving from host h3 or h4 at s2 is as follows:

   - any datagrams arriving from host h3 and destined for h1, h2, h5 or h6 should be forwarded in a clockwise direction in the network
   - any datagrams arriving from host h4 and destined for h1, h2, h5 or h6 should be forwarded in a counter clockwise direction in the network



Specify the flow table entries in s2 that implement this forwarding behavior.