

## Homework 2 of CS4550, Summer 2002

Due: 5pm, August 28

1. (10 points) Textbook page 370. Problem 2.
2. (10 points) Textbook page 370. Problem 3.
3. (10 points) Textbook page 371. Problem 4.
4. (10 points) Textbook page 371. Problem 5.
5. (10 points) Textbook page 372. Problem 6.
6. (10 points) Textbook page 372. Problem 8.
7. (10 points) Suppose we have the forwarding tables shown in the table below for nodes A and F, in a network where all links have cost 1. Give a diagram of the smallest network (in terms of number of nodes and links) consistent with these tables.

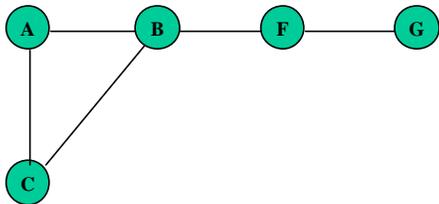
A			F		
Node	Cost	Next hop	Node	Cost	Next hop
B	1	B	A	3	E
C	2	B	B	2	C
D	1	D	C	1	C
E	2	B	D	2	E
F	3	D	E	1	E

8. (10 points) Suppose a router has built up the routing table shown in table below. The router can deliver packets directly over interfaces 0 and 1, or it can forward packets to routers R2, R3, or R4. Describe what the router does with a packet addressed to each of the following destinations:
  - (a) 128.96.39.10
  - (b) 128.96.40.12
  - (c) 128.96.40.151
  - (d) 192.4.153.17
  - (e) 192.4.153.90

SubnetNumber	SubnetMask	Next hop
128.96.39.0	255.255.255.128	Interface 0
128.96.39.128	255.255.255.128	Interface 1
128.96.40.0	255.255.255.128	R2
192.4.153.0	255.255.255.192	R3
<default>		R4

9. (10 points) Consider the network in figure below, using link-state routing. Suppose the B-F link fails, and the following events then occur in sequence:
- Node H is added to the right side with a connection to G.
  - Node D is added to the left side with a connection to C.
  - A new link D-A is added.

The failed B-F link is now restored. Describe what link state packets will flood back and forth. Assume that the initial sequence number at all nodes is 1, and that no packets time out, and that both ends of a link use the same sequence number in their LSP for that link, greater than any sequence number either used before.



10. (10 points) Textbook page 374. Discussion Problem 1. Explain your answer.