CMSC 417 Computer Networks

Spring 2010

First Third-Term Exam

Closed book and notes; In class

Thursday, March 4th

- \oplus Do not forget to write your name on the first page. Initial each subsequent page.
- \oplus Be neat and precise. I will not grade answers I cannot read.
- ⊕ You should draw simple figures if you think it will make your answers clearer.
- \oplus Good luck and remember, brevity is the soul of wit
- All problems are mandatory
- I cannot stress this point enough: **Be precise**. If you have written something incorrect along with the correct answer, you should **not** expect to get all the points. I will grade based upon what you **wrote**, not what you **meant**.
- Maximum possible points: 50.

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Problem	Points
1	
2	
3	
4	
5	
Total	

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- (a) Describe the following terms: (2 points each)
 - Latency

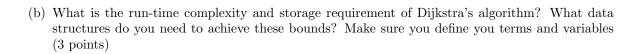
• Subnet

• Poisoned Reverse

• ARP

• BGP Speaker

2.	LS and DV Routing	
	(a) Precisely how are sequence numbers used in Link State routing?	(3 points)



(c) Why (if at all) are periodic updates required by Distance Vector routing? Explain with an example. (4 points)

3.]	IΡ	Service	Model,	Addre	ssing,	ARP
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(a) How did the IP forwarding procedure change, both at hosts and at routers, due to the addition of subnets? (4 points)

(b) Suppose you've been allocated 128.8.128.0/20, and you split your addresses into four equal size subnets. Give the subnet and broadcast addresses addresses (also known as subnet ID or subnet number) corresponding to your subnets. (2 points)

(c) Describe how ARP can be used to bridge two different ethernet segments to form a single IP subnet. Assume "host" B has interfaces B_0 and B_1 on the two segments respectively. The upstream router R is on the segment with interface B_0 . (4 points)

4. CII	DR, BGP
(a)	How are the "Next Hop" and "AS Path" attributes used in BGP? (2 points)
(b)	Describe one reason a route reflector might be used. (1 points)
(a)	What is the difference between an ICD and iDCD2 (2 points)
` ′	What is the difference between an IGP and iBGP? (2 points) Suppose ISP A is offered a route for its own customer C by the customer and by its provider P.
(4)	How should A prioritize these routes? (2 points)
(e)	Describe with an example how the scenario in the previous problem can occur, and why customer C might want such a configuration. (3 points)

Multicast, Assignment

5.	(a)	Why can't reverse path broadcast be used for reliable flooding in Link State routing? (2 points)
	(b)	In PIM, why and to whom would a RP send a (S,G) join message? (2 points)
	(c)	What is a parent router in DVMRP? (2 points)
	(d)	What are the advantages (or disadvantages) of a multi-threaded server over a server that forks a
	` /	process for each new connection?