Computer Networks

Spring 2022

Homework Assignment of Week 6 (Network Layer)

Problem 1: English Textbook Chapter 5, R7

R7. Why are different inter-AS and intra-AS protocols used in the Internet?

Problem 2: English Textbook Chapter 5, R8

R8. True or false: When an OSPF route sends its link state information, it is sent only to those nodes directly attached neighbors. Explain.

Problem 3: English Textbook Chapter 4, P11

P11. Consider a subnet with prefix 128.119.40.128/26. Give an example of one IP address (of form xxx.xxx.xxx.xxx) that can be assigned to this network. Suppose an ISP owns the block of addresses of the form 128.119.40.64/26. Suppose it wants to create four subnets from this block, with each block having the same number of IP addresses. What are the prefixes (of form a.b.c.d/x) for the four subnets?

Problem 4: English Textbook Chapter 4, P14

P14. Consider sending a 2400-byte datagram into a link that has an MTU of 700 bytes. Suppose the original datagram is stamped with the identification number 422. How many fragments are generated? What are the values in the various fields in the IP datagram(s) generated related to fragmentation?

Problem 5: English Textbook Chapter 5, R20

R20. What two types of ICMP messages are received at the sending host executing the Traceroute program?