King Fahd University of Petroleum and Minerals
College of Computer Sciences and Engineering
Department of Computer Engineering

COE 444/COE 546/CSE 550 – Internetwork Design and Management (T132)

Homework # 02 (*due date & time: Wednesday 05/03/2014 during class period*)

***** Show all your work. No credit will be given if work is not shown! *****

Problem # 1 (30 points): An enterprise network has an IP address of 210.11.12.65 and uses a default mask. Determine the following:

1. **(10 points)** The class of the network **and** the default mask.
2. **(5 points)** The network address.
3. **(5 points)** The broadcast address.
4. **(10 points)** The hosts address range.

Problem # 2 (50 points): Suppose that the enterprise in problem 1 is to create a total of 3 subnets with the IP address of 210.11.12.65 belonging to the first subnet. Determine the following:

1. **(5 points)** Number of bits needed for the 3 subnets.
2. **(10 points)** The subnet mask.
3. **(5 points)** The total number of hosts that each of the 3 subnets can have.
4. **(30 points)** The subnet address, the broadcast address, and the hosts address range for each of the 3 subnets. Use the following table to summarize your answer:

Subnet	Subnet Address	Broadcast Address	Hosts Address Range
1			
2			
3			

Problem # 3 (20 points): A router receives a packet with destination address 194.10.126.129. The following entries appear in its routing table:

Subnet ID	Destination Port
194.10.126.0/24	port 1
194.10.126.160/27	port 2
194.10.126.64/26	port 3
194.10.126.96/27	port 4

To which port should the router forward the packet? Show how the router makes this decision.