NTNU
The Norwegian University of
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Department of Telematics

TTM4100
Communication – Services and Networks

Additional Assignment 1

Deadline of submission: 30.04.2017

The answers should be submitted directly to Its Learning.

In this additional assignment, the questions are related to Chapter 5 and Chapter 6 in the textbook: J. F. Kurose and K. W. Ross. *Computer Networking: A Top-Down Approach (International Edition, 6/e).*

The following selected questions should be answered and the answers should be submitted to Its Learning.

1. What are some of the possible services that a link-layer protocol can offer to the network layer? Which of these link-layer services have corresponding services in IP? In TCP?

2. Suppose two nodes start to transmit at the same time a packet of length L over a broadcast channel of rate R? Denote the propagation delay between the two nodes as d_{prop}. Will there be a collision if $d_{prop} < L/R$? Why or why not?

3. What does it mean for a wireless network to be operating in "infrastructure mode"? If the network is not in infrastructure mode, what mode of operation is it in, and what is the different between that mode of operation and infrastructure mode?

4. If a node has a wireless connection to the Internet, does that node have to be mobile? Explain. Suppose that a user with a laptop walks around her house with her laptop, and always accesses the Internet through the same access point. Is this user mobile from a network standpoint? Explain.

5. Consider the single-sender CDMA example in Figure 6.5. What would be the sender's output (for the 2 data bits shown) if the sender's CDMA code were (1, -1, 1, -1, 1, -1, 1, -1)?