KFUPM - COMPUTER ENGINEERING DEPARTMENT

COE-543 – Mobile Computing and Wireless Networking
Assignment 2 – Due June 7th, 2009.

Problem 1: (20 points) HSPA is an extension to UMTS 3G to provide broadband data services. It can be considered as a system that is integrating data services on top of a voice oriented network.

(a) Summarize the capabilities of HSPA in terms of provided bits rates and services.

(b) Explain briefly the medium access protocol supported by HSPA that allows a terminal to transmit and receive data using this system.

Problem 2: (20 points) Mobile WiMax is a system designed with broadband data as the core requirement. However, there are examples where operators are trying to utilize Mobile WiMAX for providing voice services.

(a) Cite some of these examples by providing a title, a few lines description, and the url (reference) for each of the examples.

(b) What is the medium access protocol within Mobile WiMAX that would be used to provide voice service? Explain.

Problem 3: (20 points) Explain *briefly* how can Lee's Microcell Zone technique provides capacity enhancement for cellular deployments.

Textbook Problems: (20 points each) 4.7, 4.8, 4.11, 5.2, and 5.3

Problem 5.2 has typos – in part (a) the channel bandwidth is 15 kHz and not 15 MHz. When not given, assume the path loss exponent to be 4.