

***KFUPM - COMPUTER ENGINEERING DEPARTMENT***

**COE-543 – Mobile Computing and Wireless Networks**

**Student Name:**

**Student Number:**

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**1) (20 points)** On the subject of IEEE802.11 MAC.

a) (8 points) Consider the example solved in textbook and class notes Example 4.19. Redo the example assuming station B will use the RTS/CTS mechanism. Assume the node receiving station's B traffic, denoted by "Station B Destination" does not send any traffic of its own. Use a diagram similar to that of Figure 4.15 and show all transmissions from the stations and corresponding interframe spacing (IFS) intervals.

b) (12 point) Define the hidden terminal problem and the exposed terminal problems. How does the mechanism RTS/CTS provide a solution for these two problems.

**2) (bonus 10 points)** On the subject of OFDM/OFDMA

Explain the transmitter/receiver structure for a single carrier OFDM system highlighting the role of the cyclic prefix, the IDFT block, the DFT block, and the on-tap equalizer.

Hint: *watch the last 20 minutes of the following video lecture on OFDM found at:*  
<http://www.youtube.com/watch?v=Hajn8fAyeZ0>