CS 372 Introduction to Computer Networks
Self-Check Exercises: Lecture 39 **Solutions**

1) What is the difference between "wireless "and "mobility" in terms of networking?
   Wireless generally refers to a link-layer protocol which enables a physical layer to be transmitted without a wired link (over the air). Mobility, on the other hand, refers to the management of a host which moves amongst a number of networks (which may not be related, hierarchically).

2) Describe a scenario that is *wired*, but still *mobile*.
   A laptop which moves between a home Ethernet network to a work Ethernet network.

3) Describe a scenario that is *wireless*, but not *mobile*.
   A home PC which is connected over Wifi, but which never moves from this network.

4) What multiple access control scheme does 802.11g Wifi use?
   CSMA/CA

5) What are some differences between wired and wireless links?
   Undirected Media (broadcast in a sphere or cone, rather than on a wire)
   This leads to much faster signal degradation (think flashlight vs. laser)
   Multipath propagation (which also helps with coverage, actually)
   Interference (much worse than unshielded cables – more like bus network, but with all manner of communications on the bus).

6) Describe the RTS/CTS channel reservation scheme.
   A connected host transmits a broadcasts a request-to-send message into the channel. The AP receives this (and possibly several other RTS's) and makes a decision to grant exclusive access to the channel to one host. They broadcast a CTS indicating how long this one host will have access to the channel. All connected hosts receive this and halt their "random access" attempts to send data into the channel for the allotted period of time.

7) When using RTS/CTS, are collisions still possible?
   Yes. For example, the RTS packet can collide with other RTS or random access packets. Or, during the CTS window, another user can attempt to join the network, causing a collision.