CS 372 Introduction to Computer Networks
Self-Check Exercises: Lecture 35 **Solutions**

1) What are the two primary link types for adjacent nodes? Describe each and give examples.
   Point to Point: Connection to only one other node. (Star Ethernet)
   Broadcast: Connection to many other nodes. (Wifi, Bussed Ethernet, FM Radio)

2) What is a multiple access protocol designed to do?
   Impose regulations on devices on a broadcast link which limits or eliminates collisions on that link, using the broadcast link itself (rather than a separate channel).

3) In link layer terminology, what is a collision?
   Two or more frames of the same type being received at the same node at the same time.

4) What is a channel partitioning multiple access scheme? Describe and give examples.
   Diving the channel into smaller pieces, and assigning each of these pieces to a device. That device then has sole permission to use that "piece". TDMA, FDMA are both of this type. Some more practical examples include AM/FM radio "stations", television "channels"

5) What is a random access multiple access scheme? Describe and give examples.
   Multiple devices attempt to access the scheme without any coordination amongst each other. Collisions may occur, so the scheme must be able to recover and/or avoid them somehow. Aloha, slotted Aloha, and CSMA are all random access schemes.

6) What is a "taking turns" multiple access scheme? Describe and give examples.
   Allowing one device full access to the channel at a time, then 'handing off' permission to another device, often managed by a supervisor. Polling and Token Ring networks use this model. A non-technological example would be a "talking stick" or "sharing stick", or possibly the childhood game "Red Rover".

7) What is "Carrier Sense Multiple Access"?
   A device will "listen" to the channel to see if anyone is currently transmitting. If it detect the channel is in use, it delays its own transmission until the channel is no longer in use.

8) In CSMA/CD what happens when a collision is detected by a sending device?
   The sending device will cut its transmission and wait some amount of time before trying to access the channel again.