P5:

**a.**

The 802.11 protocol does not break down completely even though the two ISPs configured their APs to operate over the same channel.

• The two APs will have different SSIDs and MAC addresses and one of the SSISs will be assigned to the wireless station that connects cafe.

• A virtual link will be maintained between the new station and the AP.

• Consider that the two Aps be AP1 and AP2. Also, consider that the new station is associated with AP1.

• A frame that is sent by the new station will be addressed to AP1.

• The frame will also be received by AP2. As the frame is not addressed to AP2, AP2 will not process the frame.

• The two APs can work in parallel over the same channel.

• The transmission rate may be degraded as the two stations are transmitting over the same channel.

When the two stations, each associated with a different ISP, attempt to transmit at the same time, collision (due to interference) will occur, because both stations transmitting over the same channel and at the same time.

The two stations, each associated with a different ISP, can transmit data at the same time without collisions.

**b.**

• The performance will be upgraded when one AP operates over channel 1 and the other over channel 11.

• Both APs are using non-overlapping channels.

• The two stations are transmitting over different channels.

• Therefore, the aggregate transmission rate will be 22 Mbps.

P6:

If the channel is detected idle then the station does not transfer the second frame to avoid the collision

by design of the CSMA/CA. When received the protocol for first frame, a station to send second frame

begins at step 2 rather than step1.

**For example:**

Station X and Station Y are transfers data frames,remain all not want to transmit data. In this situation,

station X find the channel to be idle and send first frame then next second frame. Similarly Y received

the transfer data at the same time. Then leads to collision.  So, using CSMA/CD to avoid collsion.