

## NET3900: Assignment 1

These questions are based on Module 1. Due Date: End of Day Sept 14, 2016.

Q1/2: What does IEEE 802.11 refer to and what does Wi-Fi refer to?

802.11 refers to the standards written by the IEEE

Wi-Fi is the name for this technology, defined by the Wi-Fi Alliance and based on their compliance spec.

Q2/2: Two wireless stations are each connected to a different Access Point. The Access Points are connected via a Distribution System.

a) How many BSS are there?

b) How many ESS are there?

a) Each wireless station connected to its Access Point forms a BSS. Therefore, there are 2 BSS.

b) 1 ESS given the same SSID for each BSS.

Q3/2: What is the difference between an Independent BSS and an Infrastructure BSS?

Independent BSS: peer-to-peer frame exchange

Infrastructure BSS: all frame exchanges are via the Access point to which the stations are connected.

Q4/2: Two “Aruba Networks” Access Points have 2 active radios each (2.4 GHz and 5 GHz Band). The Access Points are partitioned into 3 VAPs (Virtual Access Points). How many BSSIDs are included this ESS. Explain the rationale for your answer. Note: An Access Point which is partitioned into 3 VAPs can be counted as 3 separate Access Points.

3 VAPs/radio x 2 radios/AP x 2 APs = 12 VAPs.

Since each VAP has a BSSID (slide 9), there are 12 BSSID.

Q5/2: In which radio bands (ISM, UNII) do the following standards operate?

a) 802.11a: UNII

b) 802.11g: ISM

c) 802.11n: ISM / UNII

d) 802.11ac: UNII

Ref: Module 1, slide 6.

Q6/2. Why does the ISM band only support 3 non-overlapping channels?

Each Wi-Fi channel requires 20-22 MHz of bandwidth.

The ISM band is 83.5 MHz wide.

There is only room for  $83.5 / 22 = 3$  Wi-Fi channels