## WiFi Questions

March 1, 2021

Question	Points	Score
1	3	
2	1	
3	2	
4	3	
5	1	
6	1	
7	3	
8	3	
9	3	
10	1	
11	1	
12	1	
13	1	
14	2	
15	1	
Total:	27	

1. (3 points) List three techniques WiFi has used to increase its data rate as new versions have come out.

2. (1 point) Out of the 11 2.4 GHz channels designated for WiFi in the U.S., why are channels 1, 6, and 11 the channels commonly used?

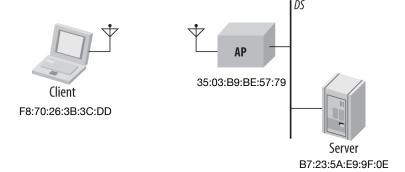
3. (2 points) Describe the hidden node (terminal) problem. What does WiFi do to avoid this problem?

4. (3 points) What is carrier sensing? Describe the two types of carrier sensing that WiFi uses.

5. (1 point) How does interframe spacing allow for priority between WiFi frames?

6. (1 point) What does it mean when the From DS bit is set to 1 and the To DS bit is set to 0?

7. (3 points) The client laptop is making a HTTP request to the server. Given the MAC addresses shown in the figure below, how would address 1, 2, and 3 fields be set for an 802.11 frame containing the HTTP request?



8. (3 points) Give the benefits of active and passive scanning. Why would you prefer one over the other?

9. (3 points) List the three threats 802.11 tries to protect against.

10. (1 point) How does WPA2 protect against replay attacks?

11. (1 point) Why was having an Initialization Vector (IV) of 24 bits a problem for WEP?

12. (1 point) Why is CRC-32 not a good fit for WEP (or any security protocol for that matter)?

13. (1 point) Why does WPA2 use temporal keys?

14. (2 points) List two weaknesses of WPA2.

15. (1 point) What service does Diffie-Hellman provide?