

Question Bank

Subject: WLAN and Security

Subject Code: BTEC-906A-18

Very Short Answer Type

1. Define wireless communication?
2. What is infrared modulation?
3. Name two advantages of wireless communication?
4. State two limitations of wireless networks?
5. List two applications of wireless communication?
6. What is DSSS?
7. Expand FHSS and state one use?
8. Define TDMA?
9. What is CDMA used for?
10. Differentiate FDMA and TDMA?
11. What is CSMA?
12. What does OFDMA stand for?
13. Define frequency spectrum?
14. Mention two types of WLANs?
15. What is the purpose of a wireless access point?
16. Define WLAN topology?
17. What is ad-hoc mode in WLANs?
18. Name two physical layer standards of IEEE 802.11?
19. What does MAC stand for?
20. Name any two challenges for MAC in WLANs?
21. What is the function of DCF?
22. Define fragmentation in wireless communication?
23. What is reassembly?
24. What is the role of a frame in 802.11?

25. Mention two components of the 802.11 general frame format?
26. State the purpose of encapsulation?
27. What is a control frame?
28. What are management frames used for?
29. Name two types of management frames?
30. What is authentication in WLAN?
31. What is the association in WLAN?
32. Define WAP?
33. Mention two functions of WAP?
34. What is WTLS?
35. List two WTLS security issues?
36. What is workstation security?
37. Mention two ways to safeguard a WLAN?
38. Expand WEP?
39. Define confidentiality in wireless security?
40. What is the purpose of WEP?
41. Mention one cryptographic operation in WEP?
42. State one problem with WEP?
43. What is EAP?
44. Expand EAPOL?
45. Name any two EAP messages?
46. What does 802.1x provide?
47. List two components of 802.1x architecture?
48. What is the function of EAPOL encapsulation?
49. What does the EAP Success message indicate?
50. What is passive scanning in WLAN?
51. Mention the use of CSMA in WLAN?
52. What does fragmentation help with in WLAN?

53. What does FHSS help prevent?
54. Mention one difference between DSSS and FHSS?
55. Name any one WLAN equipment besides access points?
56. Define data frame?
57. Mention one MAC access mode?
58. What is the function of the frame control field?
59. Name one component of the 802.11 architecture?
60. What is the role of the physical layer in WLAN?

Short Answer Type

1. Explain the advantages and limitations of wireless communication?
2. Describe the different wireless media used in wireless communication?
3. Explain DSSS with the help of a diagram?
4. Explain FHSS with an example?
5. Compare TDMA, FDMA, and CDMA?
6. What is OFDMA? How is it different from FDMA?
7. Explain the concept of frequency spectrum in wireless communication?
8. Write a short note on infrared and radio frequency spectrum?
9. Discuss the types of WLANs?
10. List and explain various WLAN topologies?
11. What are the main technologies used in WLAN?
12. Describe the components of IEEE 802.11 architecture?
13. Explain the physical layer standards of IEEE 802.11?
14. What are the challenges faced by MAC in WLANs?
15. Describe MAC access modes in WLANs?
16. Explain DCF and its significance?
17. What is fragmentation and how does it work in WLAN?
18. What is reassembly in WLAN and why is it needed?
19. Describe the general frame format in 802.11?

20. Explain frame control field in detail?
21. Write a note on control frames and data frames?
22. Describe different types of management frames?
23. Explain the process of authentication in WLAN?
24. Explain the process of association in WLAN?
25. Describe the architecture of WAP?
26. What are the key features of WAP security?
27. Explain the authentication process in WAP?
28. Define confidentiality and integrity in WTLS?
29. Describe security issues in WTLS?
30. Explain various methods of access point security?
31. Describe methods of workstation security?
32. List and explain ways to safeguard wireless LANs?
33. Describe the cryptographic background of WEP?
34. How does WEP ensure security?
35. What are the problems with WEP?
36. Explain the EAP exchange process?
37. Describe the structure and purpose of the EAP packet format?
38. Explain the 802.1x architecture with a diagram?
39. What is the role of EAPOL in WLAN?
40. Explain 802.1x network port authentication process?
41. How does EAP work in 802.1x authentication?
42. Explain the EAP success and failure messages?
43. What is the role of authentication servers in 802.1x?
44. Differentiate between DCF and PCF?
45. What is CSMA/CA and how does it work?
46. Describe the contention-based data service in WLAN?
47. How is encapsulation of higher-layer protocols done in 802.11?

48. Describe management frame fields with examples?
49. What is the purpose of 802.1x in wireless LANs?
50. Explain how EAPOL is encapsulated in 802.1x communication?

Long Answer Type

1. Explain in detail the fundamentals of wireless communication?
2. Describe various wireless modulation techniques with examples?
3. Compare and contrast DSSS and FHSS with diagrams?
4. Explain multiple access techniques (TDMA, FDMA, CDMA, CSMA, OFDMA) in detail?
5. Discuss the complete frequency spectrum used in wireless communication?
6. Describe in detail types of WLANs, their technologies and applications?
7. Explain the architecture of IEEE 802.11 in detail with a labeled diagram?
8. Discuss the MAC layer challenges in WLAN and how they are handled?
9. Explain MAC access modes and timing mechanisms used in WLAN?
10. Describe the working of DCF and PCF in contention-based access?
11. Discuss the process of fragmentation and reassembly in 802.11?
12. Explain the general frame format and all fields in 802.11?
13. Discuss control, data, and management frames in WLAN with examples?
14. Describe the association and authentication process in IEEE 802.11?
15. Explain WAP architecture, working, and its security features?
16. Describe the three major security goals (authentication, integrity, confidentiality) in wireless networks?
17. Discuss in detail WTLS and its security issues?
18. Describe the complete wireless LAN security model?
19. Explain access point and workstation security mechanisms?
20. Describe the cryptographic operations in WEP with a diagram?
21. What are the limitations of WEP? How can they be addressed?
22. Explain EAP with a focus on exchange, request, and response phases?
23. Describe the EAP packet format and its components?

24. Explain the complete working of 802.1x port-based network access control?
25. Describe the architecture of 802.1x and its role in wireless LAN security?
26. Discuss the use of EAPOL in WLAN authentication with diagrams?
27. Describe 802.1x authentication process with step-by-step flow?
28. How does 802.1x operate in wireless LANs? Discuss with example?
29. Compare 802.11a, 802.11b, and 802.11g standards?
30. Explain how encapsulation of higher-layer protocols works in 802.11?
31. Describe the complete life cycle of a WLAN connection?
32. How is frame transmission managed in IEEE 802.11?
33. Explain frame management fields and their significance?
34. Discuss contention-based data service and its implementation?
35. Describe wireless media options and their characteristics?
36. Explain differences between ad-hoc and infrastructure modes in WLAN?
37. Describe how TDMA and CDMA manage simultaneous transmissions?
38. What are the main design considerations for wireless LAN security?
39. Explain cryptographic keys and how they are used in WEP/EAP?
40. How can wireless LANs be safeguarded against external threats?