SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai

16 MARKS

UNIT 2

Mobile Networks

1. Cellular Network Concepts

1. **What is a cellular network?**
2. **Explain the concept of frequency reuse in cellular networks.**
3. **What are the primary benefits of using cellular networks over traditional wired networks?**
4. **Define the term "cell" in the context of cellular networks.**
5. **How do base stations facilitate communication in cellular networks?**

2. Frequency and Interface in Cells

6. **What is the role of frequency allocation in cellular networks?**
7. **Explain the concept of handover in cellular networks.**
8. **Describe how frequency hopping is used in cellular systems.**
9. **What challenges are associated with frequency management in cellular networks?**
10. **How does the concept of cell splitting enhance network capacity?**

3. Access Channels

11. **What are access channels in a cellular network?**
12. **Differentiate between random access channels and dedicated access channels.**
13. **How does the Mobile Station (MS) initiate a call using access channels?**
14. **What role do control channels play in cellular networks?**
15. **Explain the significance of access channel capacity in cellular communication.**

4. Mobile Network Architecture

16. **What are the key components of mobile network architecture?**
17. **Describe the function of the Mobile Station (MS) in a cellular network.**
18. **How do Base Station Subsystems (BSS) contribute to network performance?**
19. **What is the role of the Network Switching Subsystem (NSS) in mobile networks?**
20. **Explain the importance of a hierarchical structure in mobile network architecture.**

5. Mobile Station

21. **Define the term Mobile Station (MS) in the context of cellular networks.**
22. **What components make up a typical Mobile Station?**
23. **How does a Mobile Station communicate with the Base Station?**
24. **What is the significance of the Subscriber Identity Module (SIM) in a Mobile Station?**
25. **Discuss the power management features in a Mobile Station.**

6. Base Station Subsystems (BSS)

26. **What are the main components of a Base Station Subsystem (BSS)?**
27. **Describe the function of the Base Transceiver Station (BTS).**
28. **What is the role of the Base Station Controller (BSC) in the BSS?**
29. **How does the BSS manage handovers between cells?**
30. **Explain the concept of signal processing in the Base Station Subsystem.**

7. Network Switching Subsystems (NSS)

31. **What is the function of the Network Switching Subsystem (NSS)?**
32. **How does the NSS manage call routing in a cellular network?**
33. **Discuss the role of the Mobile Switching Center (MSC) in the NSS.**
34. **What are the main functions of a Visitor Location Register (VLR)?**
35. **Explain how the NSS interacts with other components of the mobile network.**

8. Mobile Network Protocol Stacks

36. **What is a mobile network protocol stack?**
37. **List the layers in a typical mobile network protocol stack.**
38. **Explain the role of the physical layer in mobile network communication.**
39. **What protocols are commonly used in the data link layer of mobile networks?**
40. **Discuss the significance of the transport layer in mobile communication.**

9. Core Networks

41. **What is the role of core networks in mobile communications?**
42. **Describe the components of a core network in a cellular system.**
43. **How do core networks manage data traffic in mobile networks?**
44. **What is the significance of gateways in core networks?**
45. **Explain the challenges faced by core networks in modern mobile communications.**

10. Additional Topics

46. **What is the impact of cellular technology on mobile data services?**
47. **How do 4G and 5G technologies differ from earlier generations?**
48. **What are some common applications of cellular networks?**
49. **Explain how cellular networks support emergency communication services.**
50. **Discuss the future trends in cellular network technology.**