



SEMBODAI RUKMANI VARATHARAJAN ENGINEERING COLLEGE
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
QUESTION BANK

Sub.Code : CS1007

Semester : VII

Sub.Title : Wireless Network Systems

UNIT – I
FUNDAMENTALS
PART-A (2 marks)

1. Name the five design considerations in selecting a modulation scheme for a wireless networks.
2. Name four space diversity techniques.
3. What are the advantages of high efficiency voice bond modems?
4. What are the types of diversity?
5. Why is out of band of radiation is an important issue in designing modulation scheme?
6. Define ACI
7. Why is PPM used with IR communication instead of PAM?
8. Write down the formula for Nidle.
9. What is CSMA?
10. Explain about hidden terminal problem.
11. What is capture effect?
12. Define: (i) Persistent (ii) non- Persistent (iii) 1-Persistent (iv) P-Persistent.
13. What is the difficulty of implementing CSMA/CD in a wireless environment?
14. What are the popular access schemes for data network? Classify them.
15. Explain about Space Diversity.
16. What are the sectored antennas? How they are useful in combating multipath?
17. Difference between ALOHA and slotted ALOHA.
18. What is the difference between the access technique of IEEE802.3 and IEEE802.11?
19. What is the difference between performances evaluation of voice oriented fixed assignment and data oriented random access?
20. What is Multi carrier Modulation?
21. What do you understand about Ultra Wide Band (UWB) Technology?

PART-B (16 Marks)

1. With necessary diagram explain the different type of Random Access Methods of Mobile Data Services. (16)
2. List out the different type of diversity. Techniques and explain each with necessary diagram. (16)
3. What are the considerations needed in the design of wireless modems? Substantiate. (16)
4. a) what is UWB pulse transmission? Describe the salient features. (8)
b) Explain about short distance range in wireless networks. (8)
5. What are the broad band modems for higher speeds and explain. (16)
6. Explain about traditional modems and equalizers. (16)
7. Explain about integration of voice and data traffic. (16)

UNIT-II
WIRELESS WIDE AREA NETWORK (WWAN)
PART-A (2 marks)

1. Name any three advantages of an infrastructure topology over an Adhoc topology.
2. Compare single hop and multi hop Adhoc network topologies.
3. Name the five different cell types in the cellular hierarchy and compare them in terms of coverage area antenna site.
4. Why is hexagonal cell shape preferred over square or triangular cell shapes to represent the cellular architecture?
5. Name five architectural methods that are used to increase the capacity of an analog cellular system without increasing the number of antenna sites.
6. Explain how smart antennas can improve the capacity of cellular network.
7. What are channel allocation techniques?
8. Define FCA, DCA, HCA
9. Compare FCA, DCA
10. Define: Channel borrowing technique and types
11. Define: Mobility management.
12. Name the two important issues in mobility management.
13. What is location management? What are the three components of location management?
14. Name three paging mechanisms.
15. Explain about paging.
16. Explain three traditional handoff techniques?
17. Difference between mobile controlled and mobile assisted handoff?
18. Difference between centralized and distributed power control.
19. What are the privacy and authentication requirements of wireless networks?

PART-B (16 Marks)

1. Explain the two fundamental types topologies used in the wireless networks? (16)
- 2 Explain the concept of cellular topology and cell fundamentals with examples. (16)
3. Explain in detail about capacity expansion technique. (16)
4. Explain in detail about channel expansion techniques. (16)
5. What are the parts available in location management and explain in detail. (16)
6. What is meant by handoff? What are the issues available in handoff management explains with neat diagram. (16)
7. Discuss about power control mechanism with example. (16)
8. Explain in detail about security in wireless networks. (16)
9. Overview of network security (16)
10. Explain about Mobile IP. (16)

**UNIT III
SPEECH AND MODULATION SCHEMES**

PART-A (2 marks)

1. Difference between registration and call establishment.
2. What are the reasons to perform handoff?
3. Difference between network decided and mobile assisted handovers?
4. Name five most important logical channels in GSM.
5. What are the three types of bursts?
6. What are the three types of control channels?
7. What is IS-95?
8. What are the bandwidth and chip rates used in WCDMA and how they compare with CDMA one?
9. Why is power control important in CDMA?
10. What forward channels are involved in IS-95 for power control?

11. Name the connectionless and connection oriented services provided by the GPRS?
12. What is GPRS-136? How does it differ from GPRS?
13. What is the importance of the framing structure in GSM?
14. Name three sub systems in the GSM architecture.
15. What are VLR and HLR and why we need them?

PART-B (16 Marks)

1. What are the mechanisms available to support mobile environment? (16)
 2. Draw the protocol architecture of GSM and explain in detail. (16)
 3. Explain in detail about IS-95 CDMA forward channels? (16)
 4. Explain in detail about IS-95 CDMA reverse channels? (16)
 5. Explain in detail about IMT-2000? (16)
 6. What is GPRS? Explain in detail about GPRS. (16)
 7. Explain in detail about SMS and mobile application protocol. (16)
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**UNIT-IV
MOBILITY AND SECURITY MANAGEMENT**

PART-A (2 marks)

1. What is wireless ATM?
2. What is HAN?
3. What the difference between WLAN and WPAN.
4. Name the five major challenges for implementation of wireless LANs that existed from the beginning of this industry.
5. How do HPNA, DSL, and POTs share the telephone wiring?
6. What are the differences between LANs and HANs?
7. What are the difference between HPNA and Ethernet?
8. Expand ESS and BSS in the IEEE802.11?
9. Explain why an AP in the 802.11 also acts as a bridge?
10. What are the responsibilities of MAC management sub layer in 802.11?

PART-B (16 Marks)

1. What are the layers available in HYPERLAN-2? Explain each layer with suitable diagram. (16)
 2. What is HYPERLAN? Explain in detail about HYPERLAN-1. (16)
 3. Explain in detail about wireless ATM. (16)
 4. Explain in detail about overview, reference architecture, layered architecture of IEEE802.11? (16)
 5. Explain in detail about three choices of PHY layer. (16)
 6. Explain in detail about MAC sub layer with suitable diagram. (16)
 7. Explain in detail about MAC Management sub layer with suitable diagram. (16)
 8. What is HAN? Explain about HAN technologies? (16)
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**UNIT-V
GSM AND CDMA 2000**

PART-A (2 marks)

1. What is home RF?
2. What is the IEEE 802.15 and what is the relation to the Bluetooth and homeRF?
3. Name the four states that a Bluetooth terminal.
4. Name the three classes of application that are considered for Bluetooth technology?
5. Difference between 802.11 and 802.15?
6. How many different symmetric and asymmetric data services does Bluetooth support?
7. How many different voice services does Bluetooth support?

8. What is the maximum data rate of an overlay Bluetooth network?
9. Difference between the implementation of paging and inquiry algorithms in Bluetooth?
10. What are the two standard MAC protocols that are combined in the home RF SWAP protocol?
11. Difference between GPS, Wireless cellular assisted GPS, and indoor geolocation systems.
12. Difference between remote and self positioning systems.
13. Give some examples of location dependent services.
14. What are the E-911 services and who has mandated these services?
15. What are the basic elements of wireless geolocation applications?
16. What is Bluetooth?

PART-B (16 Marks)

1. Explain in detail about geolocation standards for E.911 services. (16)
 2. What are the technologies available for wireless geo location? Explain. (16)
 3. What is geolocation? And give the architecture of geolocation. (16)
 4. Explain about Bluetooth technology. (16)
 5. Explain in detail about interference between Bluetooth and 802.11. (16)
 6. Explain about IEEE 802.15 WPAN and HomeRF. (16)
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