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| **2012 may** | 1 | Why baseband signal cannot be directly transmitted in wireless systems? |
| 2 | What is p-persistent CSMA? |
| **2012 nov** | 1 | What is meant by radiation pattern of Antenna? Give a sample radiation pattern diagram. |
| 2 | What is a Smart System? Give any two examples. |
| **2011 may** | 1 | What is the purpose of SHF? |
| 2 | Draw the time domain and frequency domain representation of a signal. |
| **2011 nov** | 1 | How does near/far effect influence wireless transmission? |
| 2 | Which of the MAC schemes can give hard guarantees related to bandwidth and access delay? |
| **2010 may** | 1 | What is spreading factor? |
| 2 | What is polling? |
| **2010 nov** | 1 | What are the disadvantages of analog modulation? |
| 2 | Draw the 16-QAM constellation diagram. |
| **2009 may** | 1 | What are the benefits of reservation shemes? |
| 2 | What are the disadvantages of small cells? |
| **2009 nov** | 1 | Why do hidden and exposed terminal problems arise? |
| 2 | Differentiate broadcast from multicast. |
| **2008 may** | 1 | Why are electromagnetic waves with very low frequency not used for data transmission in computer networks? |
| 2 | What are main benefits of spread spectrum system? |
| **2008 nov** | 1 | How the receiver adopts for Multi-path propagation effects during wireless reception? |
| 2 | List out the disadvantages of cellular systems. |

**16 MARKS:**

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| **2012 may** | 1. | Compare the features of SDMA, TDMA, FDMA and CDMA. (8) |
| 2. | Briefly discuss about CDMA.(8) |
| 3 | Explain hidden terminal and exposed terminal problem. Explain how Multiple access collision Avoidance scheme does solve the problem. (12) |
| 4 | Write a brief note on antennas.(4) |
| **2012 nov** | 1 | Write a short note on signal propagation. (6) |
| 2 | Explain any four types of modulation with suitable diagrams. (10) |
| 3 | Discuss FDMA and CDMA in detail. (8) |
| 4 | Explain direct sequence and frequency hopping spread spectrum with transmission diagrams. (8) |
| **2011 may** | 1 | What are the main benefits of a spread spectrum system? How can spreading be achieved? How can DSSS systems benefit from multi-path propagation? (16) |
| 2 | What are the main reasons for using cellular systems? How is SDM typically realized and combined with FDM? How does DCA influence the frequencies available in other cells?(16) |
| **2011 nov** | 1 | Compare the merits and demerits of TDMA, FDMA, SDMA and CDMA techniques. (16) |
| 2 | Explain how collision is avoided using TDMA. Write about any four methods. (16) |
| **2010 may** | 1 | Discuss in detail the types of Antennas with their radiation patterns. (8) |
| 2 | Explain Diversity techniques.(8) |
| 3 | Explain Space, Frequency, Code and Time Division multiplexing in detail. 16) |
| **2010 nov** | 1 | Explain in detail the Signal Propagation in Wireless Communication networks. (16) |
| 2 | Explain the mechanism of TDMA in detail. (16) |
| **2009 may** | 1 | Is a directional antenna useful for mobile phones? Why? How can the gain of an antenna be improved? (8) |
| 2 | Explain frequency hopping spread spectrum. (8) |
| 3 | What is the main physical reason for the failure of many MAC schemes known from wired networks? What is done in wired networks to avoid effect? (8) |
| 4 | Compare TDMA, FDMA, SDMA and CDMA (8) |
| **2009 nov** | 1 | Consider three users and Barker code of six bits each for the users transmitting the signals, introduce noise and near/far problem while transmitting and reconstruct the data in the receiving side providing the proper countermeasures for the complications.(Note: use CDMA technologies)(16) |
| 2 | Table the frequency bands used for wireless applications with their ranges, propagation models and applications.(6) |
| 3 | Represent diagrammatically the protocol machines for multiple access with collision avoidance. |
| **2008 may** | 1 | A microwave transmitter has an output of 0.1 W at 2 GHz. Assume that these transmitter is used in microwave communication system where the transmitting and receiving antennas are parabolas, each 1.2 m in diameter.  What is the gain of each antenna in decibels? (5) |
| 2 | Taking into account the antenna gain, What is the effective radiated power of the transmitted signal(5) |
| 3 | If the receiving antenna is located 24km from the transmitting antenna over a free space path, find the available signal power out of the receiving antenna in dBm unit(6) |
| 4 | How does near/far effect influence TDMA systems? What happens in CDMA systems? (4) |
| 5 | Explain the following MAC protocols: DAMA, PRMA and MACA. How MACA solve the hidden terminal problem. (12) |
| **2008 nov** | 1 | How does the near/far effect influence TDMA systems? What happens in CDMA systems? What are countermeasures in TDMA systems? (8) |
| 2 | Explain the countermeasures for interference in SDMA, TDMA, FDMA and CDMA systems.(8) |
| 3 | What are the main benefits of a spread spectrum system? How can spreading be achieved? How can DSSS systems benefit from multi-path propagation? |

**FREQUENTLY ASKED QUESTIONS:**

**2 marks**

1. What are main benefits of spread spectrum system?
2. Why do hidden and exposed terminal problems arise?

**16 marks**

1. Briefly discuss about CDMA.(8)
2. Compare the features of SDMA, TDMA, FDMA and CDMA. (8)
3. What are the main benefits of a spread spectrum system? How can spreading be achieved? How can DSSS systems benefit from multi-path propagation? (16)
4. How does the near/far effect influence TDMA systems? What happens in CDMA systems? What are countermeasures in TDMA systems? (8)