Q.2 a.   What are the challenges for good cellular system infrastructure?
Answer : 1.2 from Text book I

Q.2 b. Define Continuous Random Variable. Explain the Cumulative Distribution function (CDF) and Probability Density function (PDF).
Answer : 2.2 from Text book I

Q.3 a.   In a cellular system, diffraction, reflection and direct path take a different amount of time for the signal to reach a MS. Have do you differentiate and use these signals at MS?
Answer : 3.2 from Text book I

Q.3 b.   What are the features of Convolution Codes. Draw the tree diagram for Convolution encoder for input data sequence 11001.
Answer : 4.5 from Text book I

Q.4 a.   What is the key issue for contention based access protocols? How is it solved? Give an example to explain your answer.
Answer : 6.3 from Text book I

Q.4 b.   What are the advantages if cell sectoring? Explain with suitable diagram.
Answer : 5.9 from Text book I

Q.4 c.   If 40 MHZ of total spectrum is allocated for a duplex wireless cellular system and each simplex channel has 25HZ RF bandwidth, find

(i) The number of duplex channels.

(ii) The total number of channels per cell site.

If N = 3, cell re-use is used

Answer :

Total bandwidth = 40 MHZ

Simplex channel bandwidth = 25 KHZ

So, Duplex bandwidth

= 2 x 25 = 50 KHZ

(a) Number of duplex channel $= \dfrac{40 \times 10^6}{50 \times 10^3}$ $= 800$ Channel

(b) Number of channels per cell $= \dfrac{800}{3} = 266.6$

$= 267$ channels

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Q.5 a.   Explain the concept of TDMA with the help of the basic structure of a TDMA system.
Answer: 7.2 from Text book I

Q.5 b.   What do you mean by channel allocation in cellular system? Explain the specific advantages of Dynamic channel allocation over static channel allocation.
Answer: 8, 8.2 from Text book I

Q.6 a.   What are the parameters influencing handoff? Explain hard handoff and soft handoff with schematic diagram.
Answer: Page No 195 from Text book I

Q.6 b.   Explain with neat diagram the satellite system architecture.
Answer: Page No 195 from Text book I

Q.7 a.   With the help of a block schematic explain the operation of AMPS system.
Answer: Page No 249 from Text book I

Q.7 b. With the help of diagram, explain the process of authentication be done in GSM.
Answer: Page No 229 from Text book I

Q.7 c.   Discuss the key features of MIT-2000 system
Answer: Page 249 from Text book I

Q.8 a. What do you mean by Routing in Mobile-Adhoc Networks?   Explain Dynamic Source routing with neat diagram?
Answer: 13.4, 13.6 from Text book I

Q.8 b.   Explain wireless sensor networks.
Answer: 13.8 from Text book I

Q.9 a. Compare the usefulness and limitation of WMANs, WLANSs and WPANs
Answer: Page No 316 from Text book I

Q.9 b. **Give the advantages and disadvantages of UWB technology.**
Answer: 15.2 from Text book I

Q.9 c.   Explain the 'RICOCHET' wireless microcellular data network.
Answer: 14.2.2 from Text book I

Text Book

Introduction to Wireless & Mobile Systems, II Edition (2007), Dharma Prakash Agarwal & Qing- An Zeng, Thomson India Edition