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Question Paper Code: 22023

M.E. DEGREE EXAMINATION, MAY 2014.

Second Semester

Communication Systems

01PCM203 - WIRELESS AND CELLULAR COMMUNICATION ENGINEERING

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Define capacity of wireless channel.
2. What is meant by frequency coherence?
3. What is the fundamental principle in Handoff?
4. Define frequency reuse concept.
5. Define Doppler spread.
6. What are the types of fading?
7. Distinguish micro diversity and macro diversity.
8. What is called maximum ratio combining?
9. Define frequency and timing offset.
10. Define Peak to Average Power Ratio.

PART - B (5 x 14 = 70 Marks)

11. (a) Explain in detail about channel model classification in wireless channel. (14)

Or

(b) Explain the concept of capacity of flat fading and frequency selective fading in wireless channels. (14)

12. (a) (i) Explain the concept of 'frequency reuse' as applied to cellular communication. What are the advantages of this approach. (7)

(ii) How is frequency reuse concept applied to increases spectrum efficiency? Explain. (7)

Or

(b) (i) Explain frequency management with numbering the channels and grouping into subsets. (7)

(ii) What is fixed channel assignment? Explain adjacent channel assignment, channel sharing, channel borrowing in details. (7)

13. (a) Explain the error performance of modulation techniques in fading channels. (14)

Or

(b) Explain the computation of average error probability in wireless channels. (14)

14. (a) (i) What is meant by diversity reception? Discuss the its different types and advantages in cellular communication? (8)

(ii) Explain about Transmitter Diversity in detail. (6)

Or

(b) Describe the selection combining and threshold combining with necessary diagrams. (14)

15. (a) (i) Explain in detail about data transmission using multicarrier modulation. (10)

(ii) Define peak to average power ratio. (4)

Or

(b) (i) Discuss the discrete implementation of multicarrier modulation. (10)

(ii) State the IEEE 802.11a standard. (4)

PART - C (1 x 10 = 10 Marks)

16. (a) Describe the methods of Handoff mechanism in real time cellular system. (10)

Or

(b) Explain the concept of Alamouti scheme in details. (10)