

B.E. / B.Tech.DEGREE (FULL TIME) ARREAR EXAMINATION – MAY 2012
ELECTRONICS AND COMMUNICATION ENGINEERING BRANCH
SEVENTH SEMESTER – (REGULATIONS R 2004)
EC471 – WIRELESS AND MOBILE COMMUNICATION

Duration : 3 Hours

Max. Marks = 100

Answer ALL the questions.

PART- A (10 x 2 = 20 marks)

1. What is the criteria used in the selection of threshold signal level for handoff initiation ?
2. Show that, for a given coverage area, a decrease in cluster size results in an increase in the cellular system capacity.
3. What are the loss producing mechanisms in a wireless channel?
4. What is the impact of mobility on the channel response.
5. Justify the selection of an optimum number of sub-carriers in an OFDM system.
6. List out the merits and demerits of Space Time Trellis Coding.
7. What is the difference between linear and non-linear Equalizers.
8. What do you understand by space diversity ? What is the condition to be satisfied for the diverse channels to be independent.
9. Compare open loop power control and closed loop power control used in CDMA systems.
10. How many duplex channels are defined in 50 MHz bandwidth for the GSM standard.

PART – B (5 x 16 = 80 marks)

11. What is the necessity for frequency reuse in Cellular mobile communication systems? How is it related to the system capacity ? Discuss and compare the methods that may be used for improving the capacity of existing cellular systems.
- 12a. Explain the time dispersion and frequency dispersion parameters of a mobile multi-path channel and classify mobile channels based on these parameters ? Estimate the maximum rms delay spread for which no equalizer is required at the receiver, for the EDGE system providing RF Data Rate 384 Kbps and using 8-PSK modulation.

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'OR'

- 12b. Explain the two-ray ground reflection model and derive an expression to estimate the path loss.
- 13a. Explain with suitable diagrams the different blocks present in an OFDM transceiver highlighting the necessity and significance of the IFFT process.

'OR'

- 13b. Explain the coding and decoding process involved in Space Time Block Coding using Alamouti Codes with suitable examples.
- 14a. Draw and explain the block diagram for an Adaptive Equalizer and show how the Least Mean Squares (LMS) algorithm could be used to train the equalizer.

'OR'

- 14b. Explain the concept of RAKE receiver for a wireless channel with suitable diagrams and applications in CDMA based systems.
- 15a. Discuss the salient features of FDMA and TDMA techniques and compare the network capacities provided by them.

'OR'

- 15b. Discuss in detail about the GSM channel classification. Also explain how the channels are used in the process of setting up a call.
