

## Electronics Engineering Department

### Home assignment \_1

- 1) Explain the cellular system architecture in detail.
- 2) Explain in detail the evolution of wireless communication?
- 3) Explain frequency reuse concept.
- 4) Discuss and explain the multipath propagation
- 5) Explain in detail the different techniques used to improve coverage & capacity of cellular system.
- 6) What are the different types of handover and explain that in detail?
- 7) Short note on : a) Trunking and grade of service b) Co-channel interference  
c) Adjacent channel interference

### Home assignment \_2

- 1) What is channel assignment? What are the types?
- 2) What is handoff? Explain different handoff strategies.
- 3) Explain microcell zone concept in detail
- 4) Design Cellular System in Worst-Case Scenario with an Omni directional Antenna
- 5) If a signal-to-interference ratio of 15dB is required for satisfactory forward channel performance of a cellular system, what is the frequency reuse factor and cluster size that should be used for maximum capacity if the path loss exponent is a) 4 & b) 3? Assume that there are six co-channel cells in the first tier, and all of them are at the same distance from the mobile.
- 6) We consider a cellular system in which total available voice channels to handle the traffic are 960. The area of each cell is 6 km<sup>2</sup> and the total coverage area of the system is 2000 km<sup>2</sup>. Calculate (a) the system capacity if the cluster size, N (reuse factor), is 4 and (b) the system capacity if the cluster size is 7. How many times would a cluster of size 4 have to be replicated to cover the entire cellular area? Does decreasing the reuse factor N increase the system capacity? Explain.
- 7) Write note on: "Umbrella Cell Approach"

### Home assignment \_3

- 1) Explain in detail about GSM architecture with suitable diagram.
- 2) Explain the GSM services in detail
- 3) Explain with neat block diagram, the GSM network interface.
- 4) Explain steps in call setup in GSM system.

- 5) Write short note on “GPRS”

#### Home assignment \_4

- 1) Draw and explain block diagram of OFDM system.
- 2) Why it is necessary to apply pulse shaping and windowing in OFDM
- 3) Explain the methods used in OFDM system to reduce ISI effect over wireless channel.
- 4) Explain synchronization problems arises in OFDM system
- 5) Write note on “Selection Parameters for modulation”

#### Home assignment \_5

- 1) Explain with neat diagram DSSS system.
- 2) Explain CDMA call processing with flow diagram.
- 3) How to classify logical channels in CDMA system? Explain.
- 4) What is Power Control?
- 5) What is Soft Handover/Handoff?
- 6) Write note on
  - a) Frame Quality and BER Requirements
  - b) Critical challenges of CDMA, TIA IS95 System

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